Remarks
ON THE
ESTIMATION OF PHYSIQUE AND STAMINA FOR SCHOOL PURPOSES.[1]

BY ALFRED A. MUMFORD, B.Sc. VICT., M.D. LOND.,
MEDICAL OFFICER, MANCHESTER GRAMMAR SCHOOL.

BY "physique" we generally imply the attainment of such bodily structure and organisation as enables a person to put forth mechanical energy through the muscular system. By "stamina" we generally imply the capacity for sustained vital activity, particularly when endurance has to be sustained against disintegrating influences, whether of strenuous work or of disease. The two qualities, though often closely allied, are by no means identical. Thus the medical examination needed for the study of physique of the British soldier, for candidates for cadetship in the Naval and Mercantile Marine Service, or for enrolment in the municipal Police Force is concerned primarily with the exhibition of physical energy. On the other hand, medical examination in the case of candidates for participation in the benefits of a life assurance company, is concerned with stamina or stability. It regards capacity for resisting the disintegrating forces of the various diseases and accidents that occur in modern social life—i.e., the persistence of life rather than its power is under consideration.

The standards of physique hitherto prevalent have been largely those referring to adult life, or at least the later period of adolescence. When we apply such standards to children we are faced with the fact that, even if we succeed in measuring the present powers of children, we are still a long way from being able to estimate the powers latent within, for the forces of growth of the mental and physical powers of the child are both hidden and incalculable and never stand still. This is particularly the case at the early stages of their secondary education. At first sight the problem seems insoluble, but I think further study will suggest where we may get enlightenment, though not entire solution.

Standards of bodily growth as standards of physique.—Pignet, a French military surgeon, about 1900 made some studies of "robustness" of soldiers, and attempted to determine their physical force in terms of a formula which should express the relation between height, chest girth, and weight. This formula is known as Pignet's factor, and essentially consists in saying that if from the numeral indicating the height in centimetres there are subtracted the two numerals representing chest girth in centimetres and the weight in kilogrammes, a numeral is obtained which in the absence of organic disease bears constant relation to general bodily vigour.

Standards of nutrition are generally of more value for school purposes than standards of growth, at least for the early ages of life, for growth is only one of the results of nutrition. Standards of nutrition are particularly necessary when considerable numbers of under-nourished children exist in a group which is under review. Soup kitchens for the poor preceded the establishment of popular national education in this country and abroad. In France school canteens were established as early as 1867. From the time that J. R. Mayer proved the physiological application of the doctrine of the Conservation of Energy, and the consequent interrelation of bodily nutrition and the manifestation of power, it was inevitable that the consideration of the work expended in all the forms of activity and in growth that occur during school life should be accompanied by attempts to estimate the capacity of the child attending a public elementary school in terms of bodily nutrition, particularly under those conditions in which it was evident that adequate provision for obtaining food did not exist in the home.

Standards obtained by grading according to type.—A method of grading has been suggested by Mr. Cecil Hawkins,[2] mathematical master of Haileybury College, which I have used extensively and find of great value in detecting departures from proper growth. Mr. Hawkins has analysed some 40,000 measurements of height, weight, and chest girth of middle-class boys which he had collected. He grouped them into their proper ages of 6 months interval from 10 to 18 years. He has taken each group and separated it into 20 divisions, so that each division represents 5 per cent. of the total measurements for that age. There were therefore 5 per cent. of all the boys of that age who were of that particular height, weight, and chest girth. Each of these divisions was then named as Grade 1, 2, 3, and so on to 20, so that by looking up the index book you can see whether a boy was among the biggest 5 per cent., the next tall 5 per cent., or the lowest 5 per cent. We thus have the opportunity of grading any particular boy among his fellows of that particular age. If he is not normal, and his weight does not correspond with his height, his grading in the three qualities will not correspond. He may be among the tall boys for height and not among the heavy boys for weight. Moreover, if measurements be taken at successive periods of his life, say every 12 months, we can note whether the boy remains at one particular grade in his height, weight, or chest girth, at 12, 13, 14, 15; we can also note whether his weight or his chest girth, which was at one time in proportion to his height, begins to fall off at 16 and 17. This is a common result in boys who are specialising in scholastic work. The great value of this method of individual grading comes out when we desire to estimate the stress of school life during later adolescence. At 15, 16, and 17 the indoor life or the restricted food of the scholars begins to tell on bodily physique.

Estimates based on medical inspection of children.—The estimates or criteria suggested by the experience of medical inspection and examination of adolescent children attending school and hospital tend to separate into two groups:—

1. Those which depend on the *rate and degree of bodily development.* Among these by far the most important, in my opinion, is the period of eruption of the permanent teeth, particularly the canines, the bicuspids, and the second permanent molars. There is considerable degree of variation in the age at which the several organs and systems of the body pass from their childhood to their adolescent stage. The eruption of the teeth is the least subject to disturbance, and one may safely say that if all the bicuspids and the second permanent

[1] An address to the Manchester Medical Society.

[2] Physical Examination and Development of Public School Boys. Medical Officers of Schools Association. J. and A. Churchill.

molars are well displayed by the age of 11½ to 12 years the child is well ahead in his physical development, and if some of them are delayed beyond 13 years of age, we should look out for signs of delayed development in other organs.

Standards of cardiac efficiency stated in terms of cardiac abnormality detected by ordinary physical examination of the chest are quite inadequate for school purposes and often misleading. The established methods of physical examination of the chest give us, it is true, certain information as to the existence of previous disabling disease. This information is, however, often misleading, and standards of cardiac efficiency based solely on it are often deceptive. This is particularly the case in auscultatory phenomena. Knowledge based on this does not sufficiently put us on our guard against the temporary cardiac and circulatory debility following acute febrile conditions such as influenza and tonsillitis. It does not tell us of damage done to the vasomotor apparatus by such diseases as diphtheria; nor does it guide us much in deciding upon the degree of efficiency of the heart muscle to withstand strenuous exertion. Dr. Clement Dukes long ago (Second International Congress on School Hygiene) wrote: "No physician can certify that the boy can run, although he may be able to say that he cannot."[3]

The principal school activities which call for cardiac efficiency are: (1) Gymnastic exercise, including Swedish exercise, apparatus work; (2) outdoor games and sports, running, jumping, and general school games, cricket, lacrosse, football, &c.; and (3) swimming.

Swedish exercises, as generally practised in schools, involve very little strain on the circulation, though they are capable of being carried to a considerable degree of severity under special conditions, but such excess is not a general rule. The exercises centre round respiratory and free limb movements. It may be said that almost any boy who is fit to attend school is also fit to attend the usual Swedish exercises, and yet medical certificates are constantly sent to school debarring boys from "all gymnastic work," which includes or is mainly composed of Swedish drill, to the great detriment of many who would be benefited by moderate exercise.

The strain that swimming exerts on the circulation is somewhat different, for there are here three facts to be considered. 1. The effort put forth by the good swimmer is much less violent and less rapidly exhausting than the effort put forth in ordinary racing and sports. This is owing to the buoyancy of the water, though in the case of a poor swimmer there is such excessive and useless expenditure of energy that the exercise may be violently acute. 2. There is a much greater demand upon heat production owing to the rapid radiation and conduction of heat from the body that occurs in the liquid as distinct from the atmospheric medium. Consequently the spare frame suffers more than the frame with better endowment of subcutaneous adipose tissue. 3. The natural reflex contraction of arteries and capillaries in response to the lowered temperature of the water causes the arterial blood pressure to rise, and in many persons causes the fingers to go white and numb. There is no real disadvantage if the immersion is only short, and if the vascular constriction gives way rapidly when vigorous bodily movement outside the water is encouraged. If it does not give way speedily, bathing should be prohibited. Under any circumstances, where it occurs the use of the cold bath should be very much restricted.

Estimation of physique and stamina by examination of the respiratory apparatus.—The changes which occur during adolescence in the respiratory apparatus are equally well marked. The chest, which was circular in infancy, becomes slightly oval in childhood. It is difficult accurately to estimate the chest girth of a child under 8 or 9 years old, unless exceptionally well developed. The narrowness of the lateral diameter of the chest causes the shoulder blades to protrude so that the chest circumference varies with the position of the arms. The chest becomes still more markedly oval during adolescence. In the case of vigorous children, the ribs are held well forward and free play is noticeable between the sternum and the costal cartilage, so that at each full inspiration the anterior part of the ribs tends actually to leave the sternum behind. As the movements take place freely and fully in all directions the bases of the thorax participate, so that on a lateral inspection of the bare chest we notice a vigorous lifting up and pushing forward of the whole sternum, instead of an antero-posterior flattening of an imperfectly expanded chest, whether this is associated with defective respiratory muscular power or with lymphatic enlargements causing obstruction to the entrance of air in the upper respiratory tract. In examining the chest of the young adolescent, then, we need to note the difference between a deep and a shallow thorax, and to note the degree of bending backwards of the upper or bending forwards of the lower portion of the spine that so often accompanies the rounded shoulders of those whose respiratory range is very limited.

Estimate of physique and stamina based on the condition of the musculature of neck and spine.—In regard to scoliosis in adolescent school life the significance of the milder forms is by no means clear. Many of them are physiological and are due to unequal development of the two sides of the body. Such require general outdoor existence. A certain limited amount of spinal weakness is due to pure fatigue in children who are of defective muscular power. Its occurrence during school life is generally ascribed to bad posture during school hours. In such cases I think it is wiser to turn attention first to school curriculum even before scrutinising minutely the school furniture, and to see whether the natural body balance cannot be restored by greater attention to physical development and change of occupation and position rather than by consideration of desks, seats, &c. Still more potent as a cause of minor spinal curvature and defective neuro-muscular control is the circulation of toxic products of disease, rheumatism being especially a frequent cause both of minor spinal curvature and flat-foot. It is quite rare to see these cases without an antecedent history of rheumatism, chorea, or tonsillitis.

Estimates of physique and stamina based on consideration of the general muscular build.—It is essential to have clear ideas of the width of the physiological range that exists in the development of the neuro-muscular system in different individuals, quite apart from the pathological results of past disease and ill-health. There are practically three natural physiological types of development of the neuro-muscular system.

[3] See also School Athletics and Boys' Races, Wm. Collier. J. and A. Churchill.

1. Adapted for the exhibition of massive weight. The whole physical frame here is very big. The large muscles of spine, shoulder, hip and thigh, neck and upper arm are coarse-fibred and well developed. The movements are frequently slow, but they give one the impression of considerable power. This condition may occur both among the dull and the clever boys.

2. Adapted both for bodily agility and bodily strength. The bodily frame here is often less massive in build, though large and well knit. The muscles of upper arm and shoulder, though not big, are still well developed and full of tone, and are fitted for rapid and effective action. The neck is long and thick and well set on the trunk and the body held very erect. The chest, though not necessarily deep, has wide range of action; the difference between inspiration and expiration may be as much as 4 or 5 or more inches. Such a boy is a born boxer, swimmer, runner, or athlete, and will develop in any direction he chooses to train his powers.

3. The third type needs particular care and supervision during school life if he is ultimately to put forth his full innate powers. The larger limb muscles and the bony framework are comparatively feebly developed. The nervous energy, though it may be very considerable in amount, is irregularly distributed, and tends to manifest itself either in some special handicraft or in some special intellectual channel, such as great language facilities, or its near ally, the mathematical faculty, or great imaginative faculties. Here we need constantly to distinguish between sustained strength and short-lived excitability, for, with rapid expenditure of nervous energy, rapid exhaustion is apt to set in. The sense of fatigue that should precede exhaustion and warn us of its near approach is apt to be absent. Owing to the small size of the bodily muscles these children make a poor show when tested by nutritional standards or by standards of bodily physique. To understand them properly we need to remember that though their intelligence or their dexterity is well in advance of their fellows, yet other parts of their physical frame are often behind. They are as childish in some directions as they are advanced in others. We call them precocious children, and it is tempting to stimulate the growth of their brain instead of waiting for, what is for them even more necessary, the corresponding growth of their bodies. Such children are at a further physiological disadvantage. Being thin, they radiate heat very quickly, and consequently need a larger amount of food, particularly in the form of fat, than they often get. This is a great difficulty among the clever poorer class children, where the higher cost of the hydrocarbons is apt to be considered in the household budget.

It is in the direction of proper school treatment of such children that medical inspection of secondary schools often finds its hardest task. When tests of intelligence, of understanding, and of memory of these children are made, it is found that they range high. They show keenness in school, and the form master, who only knows them during school hours, is apt to rate their powers of sustained work as high as their ready response. Only the watchful parent realises how soon such powers are exhausted and what price is paid for school brightness. It is necessary to direct special attention to the time such children go to bed, for their lack of stamina causes their bodily powers to resemble those of children of a younger rather than of the older age. They need more sleep than their fellows of similar age.

Such boys also often retain the emotional qualities of childhood for a longer period than their less mentally endowed companions. This matter requires particular consideration when they are to be punished. They are often unbalanced and uncontrolled, and it may be actually backward in accomplishments other than those in which they show precocity. Most serious of all, such children retain the infantile susceptibility to bacterial invasions for a longer time than their more robust fellows, and at 10, 12, 13, and even 15 or 16, they are still unduly susceptible to the tonsillitis, rheumatism, sore throat, whooping-cough, and other germs which their tougher comrades more readily resist. Apart from their susceptibility to the tubercle bacillus, which, considering the opportunity for adequate nourishment and care that the middle-class boy now possesses, is not often a very grave school danger, we need to consider their susceptibility to the micro-organisms of rheumatism, with its endocarditis and chorea. For this class of boy I believe that an illness, such as general rheumatism, chorea, &c., may be even more serious than an infection of tubercle.

The physique of the modern secondary day-school boy.—It is sometimes stated that the increased urbanisation of modern life has led to a diminution in physique. A complete record has been kept of physical measurements of the boys at the grammar school since 1881. All the measurements for the years 1881 to 1886 have been collected and averages taken. Similarly, the measurements from 1905 to 1910 were taken. Altogether somewhere about 7000 measurements have been utilised. Careful comparison shows that the modern boy is taller, broader-chested, and heavier than the boy of a generation ago.[4] He also maintains his level in athletic outdoor activities and more than maintains them in University attainments. (*Vide* Physique of the Modern Boy, Manchester Statistical Society, December, 1912.)

Manchester.

FROST-BITE.

BY A. W. MAYO-ROBSON, C.V.O., F.R.C.S. ENG., D.SC.,
MAJOR, R.A.M.C. (T.F.), THIRD LONDON GENERAL HOSPITAL.

THE advent of severe weather accompanied by frost and snow has added another terror to war in the trenches in the shape of frost-bite of the feet, followed in many cases by gangrene and loss of one or more toes and occasionally by more extensive destruction of the feet. Experience in this country of the class of cases under consideration has hitherto been so limited that many surgeons of large hospital experience and the greater number of nurses have up to the present never seen or treated cases of gangrene due to exposure to cold.

In ordinary frost-bite the action of cold leads to death of the tissues by shutting off the arterial blood-supply, but as the obstruction of the blood-supply usually occurs slowly, venous stasis marks the early stages, so that the extremities—the parts usually affected—assume a slaty-blue colour, become numb, and are quite cold to the touch. Not only according to the degree of cold and the length of time the damaged parts are subjected to it, but also according to the treatment adopted to restore the circulation in the early stages, will be the degree and extent of the damage to the extremities. The effects of frost-bite may be

[4] See tables published in annual report of medical officer to the grammar school, Manchester, 1910.

marked by mere congestion and œdema, analogous to chilblains of the feet, by more acute inflammation with blistering of the involved parts, or by gangrene more or less extensive.

The gangrene resulting from frost-bite is associated with venous stasis; it therefore assumes a dark brown and later a blackish colour, which clearly defines it from the living tissues. It often happens that parts apparently gangrenous may be only affected superficially, so that a toe may live and become useful an inch or more beyond the line of demarcation of the skin. Dark patches on the soles and heels are usually superficial and should be left to nature until separated, when the deeper layers of the skin that remain can be covered with epithelium.

In the treatment of frost-bite it is of the utmost importance to save as much of the injured extremities as possible, and as it is impossible to say how much of the damaged tissues will survive, immediate or early amputation is absolutely contra-indicated. In some of the cases admitted to the Third London General Hospital the feet quite up to the ankle were livid in appearance, cold to the touch, and absolutely devoid of sensation three to four days after being frost-bitten, yet under treatment complete recovery, or recovery with gangrene limited to only portions of the toes, resulted. An important factor in producing tissue death in frost-bite is the destructive changes that take place in the blood corpuscles exposed to excessive cold within the engorged veins.

It is a well-known fact that the frozen parts cannot be subjected to the action of heat in any form without great risk, as too rapid thawing leads to inflammatory exudation and the danger of gangrene from pressure. Experience has shown that the best treatment at first is friction with snow or cold water in a cold room, the changes to a warmer atmosphere being gradually brought about. Frictions with turpentine and oil or with spirit and soap liniment are useful remedies in the early stage, and after the friction the limbs should be raised on pillows and swathed in cotton-wool, which can be held in position by bandages applied loosely so as to avoid any danger of constriction. If blisters form, or discoloration of the toes or other parts shows that gangrene is probable, the whole foot should be sterilised by rubbing with oil of turpentine to cleanse the skin or with spirit containing 1 in 500 biniodide of mercury, after which strips of sterilised double cyanide gauze should be applied between the toes and the same gauze made to cover the whole foot, which is then enveloped in sterilised cotton-wool. Any blisters—which will be found to contain dark blood-stained fluid—should be snipped and carefully dried and dressed with the spirit and biniodide lotion. Painting the foot with tr. iodine would probably be quite as effectual, as an antiseptic, as the spirit and biniodide solution.

Every effort should be made to keep the parts dry and sterile, and if gangrene occurs the surgeon should on no account make too great haste to amputate, as the tissues adjoining the line of demarcation become more and more healthy and the line of granulation tissue between the dead and living tissues, if kept aseptic, gives rise to little discharge and can be kept aseptic by a daily dressing with the spirit solution. Ultimately, when it is seen what flaps of skin are available, the dry, shrivelled gangrenous parts can be removed and the bones severed at such points as will allow the flaps to be conveniently applied to make a good cover to the stump. Where the gangrenous process has only involved the superficial layers of the skin, the separation of the necrosed part should be left to Nature and afterwards skin grafting will be found useful. If as the result of neglect or the use of wet dressings the gangrene has assumed the moist variety and the wounds are infected, the spirit dressing will still be useful, and the foot should be well dusted with equal parts of zinc oxide and boric acid, so as to make every effort to convert the moist into dry necrosis, and thus to avoid general septic complications and the danger of the gangrene spreading.

In frost-bite, especially of the first and second degree, great pain is often felt, but when gangrene supervenes the pain may completely subside. The free use of opium or morphia proves beneficial, not only in the relief of pain and by securing sleep, but also by its effect on the circulation. My colleague, Captain F. H. Humphris, has been treating a number of our non-gangrenous cases by a daily application of static electricity, which seems to hasten convalescence by giving tone to the vessels and restoring the normal circulation in the feet.

Prevention.

The very fact that only a small percentage of those exposed to the same conditions of cold suffer from frost-bite would seem to show that the condition may be a preventable one, and if that be the case it behoves those who are responsible for the foot and leg gear of our soldiers to give the matter their careful consideration. Anything tight about the legs or feet that may impair the proper circulation of the blood—such as tight boots, which act by direct pressure, or too tightly applied puttees, which may possibly act by pressure on the veins returning the blood from the feet—must be injurious and may act as predisposing causes. Inadequate covering to the feet in the shape of faulty or worn-out boots or worn-out or too thin stockings act as direct causes, as wet feet chill quickly. If the feet get wet and the men have to stand for several hours in melting snow, which is a freezing mixture, the chances are very much in favour of them suffering from frost-bite. The danger might possibly be remedied by the wearing of high boots impermeable to wet by all men serving in the trenches. It would be interesting to know if the soldiers of other armies wearing long boots and not wearing puttees suffer equally with our men; this could doubtless be readily ascertained and might prove useful.

Finally, I would suggest that some instruction should be given to the men serving in the trenches both as to care in attending to the coverings of their feet and as to the avoidance of having anything too tight about their legs that may interfere with the circulation. I think it would be also useful if they could have a little instruction in the methods to be employed as first aids in case of frost-bite, for every case might be saved if properly treated in an early stage. The importance of the subject cannot be over-estimated, as we have lost, and are losing, a very considerable number of our men from this cause; and the fact that a very large percentage of those sent home will be unable to return and will have to be invalided out of the army and to be pensioned for life makes the matter one of the first importance to the country.

Since writing the above Sir Alfred Keogh has been so kind as to furnish me with the Army

Routine Orders, Nov. 23rd, 1914, a copy of which is appended.

353. FROST-BITE, PRECAUTIONS AGAINST.

Cold is likely to give rise to frost-bite when the circulation of blood is interfered with or rendered feeble.

The feet are likely to be frost-bitten under the following circumstances:—

1. When boots and puttees are too tight.
2. When the general circulation throughout the body is less active than normal.
3. When the socks, boots, and puttees are wet.

The best precautions are on the following lines:—

1. Boots should not fit tightly, but should be at least a size too large. When large boots are worn it is well to wear two pair of socks; but this is dangerous if the boots are small, as it leads to further pressure on the foot. Puttees should never be applied tightly.
2. The general circulation can be kept up by keeping the body warm and dry. A mackintosh sheet worn over the greatcoat is of assistance where no waterproof is available.
3. A dry pair of socks should be carried in the pockets when available.

Officers should see that dry standing is provided in the trenches whenever possible by means of drainage, raising of the foot-level by fascines of brushwood or straw with boards on top, or by the use of pumps where these are available.

RESULTS OF CLINICAL INVESTIGATIONS BASED ON THE METHODS OF ABDERHALDEN.

BY J. O. GAVRONSKY, M.R.C.S. ENG., L.R.C.P. LOND., M.D.,

(*From the Hale Clinical Laboratory, London Hospital.*)

THE first edition of Abderhalden's book on defensive ferments appeared in April, 1912, while a fourth edition of the same work, very considerably enlarged, was published in April, 1914. An English translation of the third edition was also published in the early part of 1914.[1] During this period the separate publications dealing with this subject have exceeded 300 in number.[2] These facts indicate very clearly the great interest shown by the medical profession in the problems connected with the ingenious theory evolved by Abderhalden as to the means of defence possessed by the animal organism against the invasion of disharmonious substances. Further, they show a marked appreciation of the importance of any possible application of his theoretical views to the practical side of medicine. No one has realised more clearly than Abderhalden himself that, once the possibility of a *specific* test was established, it was only a matter of time and perseverance before the application of the test would be extended in all possible directions. And when he considered that the methods worked out by himself and used for years in his studies on ferments generally—that is, the dialysation process and the optical method—were capable of demonstrating the existence of specific ferments in the case of pregnancy, he drew from this fact every possible conclusion as to the applicability of the test to the study of malignant tumours as well as to numerous other problems of medicine.

The practical value of the test has since been experimented with all over the world, and the cardinal question is still undecided. There is still, and probably will be for many years to come, a considerable divergence of opinion as to the possibility of demonstrating the presence of specific ferments in the blood serum, and of making use of such demonstration for diagnostic and other practical purposes. Were this possibility once established we should attain the solution of many problems of primary and vital importance. It is not, of course, a diagnosis of pregnancy in the first week that is going to bring about a serious alleviation in human suffering; moreover, gynæcologists will readily agree that it is very rarely that they are in doubt as to the differentiating between an ectopic pregnancy and a salpingitis, or between a pregnancy of the first few months and a myoma. Of real importance would be the fact that one could make an early diagnosis of malignant tumours, or give a prognosis, after operation in a case of malignant disease, or differentiate between hysteria and epilepsy in doubtful cases.

For more than a year I have been examining patients with a view to assuring myself of the possibility of demonstrating specific ferments in the blood serum. The annexed table only shows the results of cases examined during the first six months of last year, from which time I have been able to work with an established technique and under properly favourable conditions, in a laboratory specially fitted up for the purpose and supplied with the best apparatus. During the first part of the time I had to struggle with many difficulties in trying to avoid the possible errors arising out of the complicated technique.

It is with great pleasure that I offer my thanks to Professor Abderhalden for the courtesy he showed me last summer on the two occasions that I visited his institute. I am also much indebted to the medical officers of the London Hospital, as well as to Dr. J. Kennedy Will, superintendent of the Bethnal Green Asylum, for their kindness in allowing me to examine their cases. Dr. P. N. Panton, director of the Hale Clinical Laboratory, has repeatedly undertaken the bacteriological control of sterilised water, serum, dialysates, and contents of polariscope tubes, and rendered much help both by his keen interest in the subject and his friendly assistance.

On the accuracy necessary in the employment of the technique no one has insisted more strongly than Abderhalden himself; and it has become customary for workers in this field to give a fairly detailed account of each stage of their procedure if they wish to avoid any suspicion of inaccuracy in method. Now, in dealing with this aspect of the case it must be remembered that all methods are based on details of two kinds—namely, such as are of primary and universal importance, and such as are secondary or personal only. Thus, if we are dealing with the estimation of the opsonic index, it is clear that the exactly equal amount of time given to the incubation of the actual test and of its control respectively is of primary importance; while the exact means employed in spreading the mixture of leucocytes, bacilli, and serum on the slide have only a personal interest. So, too, in the Wassermann reaction the preparation and standardisation of the antigen are of the first importance, but whether one uses a capillary tube or a test-tube when making a mixture of the necessary constituents will be a matter of personal preference only.

In Abderhalden's methods also there are several details of secondary importance. I shall not dwell on any of these secondary details, but shall only give an account of such as are obviously primary.

[1] Defensive Ferments of the Animal Organism (John Bale, Sons, and Danielsson), THE LANCET, May 16th, 1914, p. 1399.

[2] Out of this number only 14 have appeared in the English language, chiefly in the American medical journals.

Obtaining the serum.—The blood has always (unless otherwise stated) been taken from the patient about one hour before the midday meal, and therefore on an empty stomach. It was drawn off from the cubital vein by means of a dry needle, to which was attached a short length of rubber tubing, and passed into wide sterile centrifuge tubes fitted with a metal cap and having a capacity of 25 c.c. After standing for 1½ to 2 hours it was centrifuged for half an hour in a good electric centrifuge, starting at a slow speed and gradually increasing to the desired rate. The serum was then poured off and again centrifuged for ten minutes. It was then carefully pipetted off, the small disc of red corpuscles at the bottom of the tube being left, still covered with at least 0·5 c.c. of the serum so as to avoid all risk of drawing up any of the corpuscles. The serum so obtained was practically always found, on microscopic and spectroscopic examination, to be quite free from formed elements or from any traces of hæmoglobin; and where such traces were found to occur the fact is noted under the experiment in question. When the investigation was first undertaken tubes were used of a capacity of only 10 c.c. In these cases it was found that the clot often adhered to the sides of the tube and did not come down to the bottom when centrifuged. Mechanical separation by means of a glass rod had to be resorted to, and hæmolysis sometimes resulted. This is avoided by using wider tubes of 25 c.c. capacity, and a relatively greater amount of serum can be obtained.

Dialysing tubes.—The tubes, No. 579A, of Schleicher and Schüll, of Düren, were used. They were always carefully tested for impermeability to albumin and for even permeability to peptones, and were never used more than three or four times without being re-tested. Occasionally the tested tubes of Schöps, of Halle, were used, but these were tested again before use. Impermeability to albumin was tested by means of the biuret reaction, and later the sulphosalicylic acid test was used as a control to the biuret reaction. In the case of the biuret reaction all danger of making a false personal estimate of the colour value was eliminated in the following manner. A friend, who knew nothing of the experiment otherwise, was given the numbered test tubes one by one, and his estimate of the colour noted down. The tubes were again given to him at random, and the values of his first, second, and even third estimates were compared for each tube. When these agreed between themselves one could have no doubt as to the accuracy of his estimate; and if the slightest suspicion of doubt arose the tube in question was rejected.

As concerns equal permeability to peptones they were not entirely satisfactory. If we take a 0·5 solution of silk-peptone and use 5 c.c. of this we get a strong reaction of the dialysate with 0·2 c.c. of ninhydrin; but it must be noted that in this case it is not possible to observe slight differences in the intensity of the colour reaction. But by using 2·5 c.c. of a 0·1 solution of peptone these differences become readily observable; and when this method was employed it was found that the tubes were not equally permeable to the peptone. The differences observed were very slight, yet even the same series of tubes on being retested would show a slight difference again as compared with the first testing. Thus they could be used only on the condition that no attention were paid to very slight differences of colour, marked differences alone being of any value.

Preparation of the organs.—Placenta was obtained immediately or shortly after delivery. Tumours were obtained from the operating theatre, and only exceptionally from the post-mortem room, in which case only fresh portions, showing no débris, were chosen. In all those cases where organs were obtained from the post-mortem room, only those were chosen in which the organs were normal (preferably cases of accident) and in which the post-mortem examination was held within 24 hours of death.

When obtained, fibrous tissue, blood-vessels, and nerves were cut away, and the remaining portion cut into small pieces or passed through a mincing machine. This was then washed under a stream of water on a sieve, while, by continuous squeezing with the fingers and with pestle and mortar, the blood was washed out, at the same time that the small bits of fibrous tissue and blood-vessels were carefully extracted. Then the tissue was suspended in water and again carefully searched for fibrous tissue and vessels. In the case of the placenta this operation was completed within 4 to 5 hours; on a few occasions only was it necessary to leave the organ overnight in water, as it could not be entirely freed from blood by the end of the working day. Microscopic examination of the placenta, just before boiling out the dialysable substances, shows that it now consists chiefly of decidual cells, with, of course, a variable amount of fibrous tissue but no corpuscles or leucocytes. Suspended in water the pieces appear snow-white, and spread on wet filter-paper compare closely with this in colour—that is to say, they have a slightly greyish tinge. A true snow-white colour of the boiled organ was only obtainable by the use of the freezing method, the sections being cut to a thickness of 20 to 40 microns.

The organ was then boiled out six times, 3 to 5 drops of glacial acetic being added, on first boiling, for each litre of distilled water. After each boiling the tissue was squeezed out thoroughly. The organs were stored in distilled water with chloroform and toluol and the bottles put away in an ice-chest.

When these organs were tested by boiling them out with five times the amount of distilled water they were found to be quite free from dialysable substances in nearly every instance; very occasionally they had to be boiled out again. They were also found to be quite satisfactory when examined by the other tests described in the third edition of "Die Abwehrfermente." Somewhat more stringent tests are suggested in the fourth edition; the organs, when taken at random and subjected to these, still showed themselves to be completely free from dialysable substances. These latter tests may be illustrated by the following example: 3 grm. of the organ are taken with five times the quantity of distilled water and incubated for 24 hours. The water is then filtered off; the organ is then boiled for five minutes with the same amount of fresh distilled water, and this is then filtered through the same filter into the first filtrate. The combined filtrates are evaporated down to 1 c.c.; 1 c.c. of 1 per cent. ninhydrin is added, and the whole is boiled for one minute. No reaction, indicating the presence of dialysable substances, was ever obtained.

In the actual experiments the amount of organ used was always the same for each dialysing tube used in the experiment—namely, 0·1 or 0·2 grms.

Preparation of peptones.—In the preparation of peptones it was found that, after evaporating the neutralised fluid to a thin syrup, and adding methyl alcohol to this and heating it, some of it dissolves and precipitates subsequently with ethyl alcohol, but that a part is not dissolved and remains on the filter paper. In his fourth edition of "Die Abwehrfermente" Abderhalden points out that this may be used as well as the part that filters through. It dissolves readily in water, and is sometimes greater in bulk than the filtered portion. This part, however, was not made use of in this investigation. The peptones contained in it are obviously of slightly different constitution to those that pass through the filter, and it seemed desirable to use peptones of as equal constitution as possible. Otherwise it would certainly be advantageous not to reject them, since it is difficult to obtain much peptone from an organ. Thus in the case of squamous-cell carcinoma 7 patients were required to obtain 50 grms. of material, from which barely 3½ grms. of peptone could be extracted.

The precipitate obtained with ethyl alcohol was dried either over sulphuric acid or over phosphorus pentachloride. In the first case the resulting powder was yellowish, in the second it was white. In either case a 5 per cent. solution of the powder was made up in physiological salt solution; and this agreed with Abderhalden's requirements in giving a rotation of −0·75° on the average, varying from about −0·90 to −0·60.

The three-field polariscope of Schmidt and Hänsch was employed, with a heating apparatus attached. The heating apparatus was not standardised at first; it was subsequently found that there was a difference of 2° C. between the reading of the thermometer and the actual temperature round the slots on which the tubes rest during examination. This difference, however, has been of no importance, seeing that the tubes were always removed from the heating chamber immediately after examination, and replaced in the incubator.

Some further remarks concerning the technique have still to be made. As a guide to this part of the work the third

edition of Abderhalden's "Abwehrfermente" was made use of, as well as his separate articles in the periodical medical journals, chiefly the *Münchener Medizinische Wochenschrift*. Thus, for instance, as will be seen from the table, I began to use only 1 c.c. of serum for each test in the dialysation process as soon as I found that Abderhalden recommended this amount with the object of avoiding the appearance of a positive reaction in the dialysate of the control test. As regards details of technique recommended by other authors, I found it useful to employ the process suggested by Oeller and Stephan of preparing the organs by means of the freezing method. The method of freeing the organ from blood by washing out its blood-vessels can be carried out quickly and successfully in the case of lung tissue, but is not of much help in the case of other organs, seeing that one has to spend just as much time afterwards in freeing them by the usual method.

I did not make use of a "preliminary dialysis" (the Vordialyse of Abderhalden) as it does not seem to affect the result very much, seeing that if one uses 1 c.c. of serum the dialysate of the control practically always gives a negative reaction.

In the framing of the table of results the directions given in the fourth edition have been followed. Whenever the dialysate of the control test—serum alone—gave a positive reaction the result was still marked with a −, and the results of the other tests marked accordingly—that is, e.g., with a (+) instead of a + in the case where serum alone gave (+) and serum + organ gave +. To indicate that the dialysate of serum alone gave a positive reaction the amount of serum used has been figured in brackets. This certainly makes the reading of the results easier.

Besides the control of serum only, another control was usually put up—namely, serum, inactivated at 58° to 60° for half an hour, with the corresponding organ. This test does not appear in the table, as it only once happened that the corresponding dialysate showed a very slight reaction. I also tried on several occasions the use of guinea-pig and rabbit serum with the view of ascertaining myself the possibility of intensifying the original reaction by these means. Stephan found that the addition of guinea-pig serum makes the test much more strongly positive whenever a positive reaction is expected. Occasionally I obtained a slight increase in the intensity of the reaction by adding 0·1 c.c. of rabbit or guinea-pig serum to the test, but the difference is not sufficiently marked to attach great importance to this modification. Moreover, as I have used the optical method in conjunction with the dialysation process, it has seemed to me advisable to indicate the results obtained by each of these methods on one line, so as to permit of easy comparison.

The different peptones are indicated by letters: B = placenta peptone obtained from Höchst. A, A_1, A_2 = different placenta peptones prepared by myself. C = a peptone prepared from 7 cases of scirrhus of the breast. L = lung peptone, prepared from normal lung tissue. Li = liver peptone, from normal liver tissue. S = a sarcoma peptone, from a case of mediastinal sarcoma. W = Witte peptone. Si = silk peptone.

The table clearly shows that the results of this investigation do not confirm the possibility of demonstrating specific ferments when Abderhalden's directions are followed. The only conclusions we are justified in drawing are as follows: 1. The serum of pregnant patients contains proteo- and peptolytic ferments which are able to decompose any kind of coagulated albumin or peptone prepared therefrom. 2. Whenever proteolytic ferments are found in the serum of patients with malignant tumours or other diseases, they have the property of acting in the same non-specific manner. 3. The serum of perfectly normal individuals does not contain these ferments, at least in the great majority of cases. A negative result, when we attempt to demonstrate proteolytic ferments in suspected cases of pregnancy or carcinoma, speaks strongly against the existence of these states, and therefore may be of value in practice.

After having prepared more than 60 different substrates, and having observed constantly the results of numerous tests, I am strongly of opinion that the varying degrees of intensity in the resulting reactions depend mainly on the physical form in which the substrate is presented to the ferments. The more spongy the tissue, as in the case of placenta—that is to say, the more of its surface that can be exposed simultaneously to the action of the ferments—the deeper and the more decisive will be the intensity of the reaction. When, on the other hand, the prepared organ, as in the case of brain tissue, gives us pieces which are neither spongy nor dendritic in appearance, then the reaction is always less intense and more difficult to estimate, particularly so when the pieces are not sufficiently small.

And so it happens that a beginner, who has learned to prepare properly a placenta albumin, will obtain apparently specific reactions by examining only cases of pregnancy; he will get a positive reaction with placenta albumin, a negative one with other substrates—for instance, with carcinoma and with kidney albumins. But let him look at the appearance of his substrates and compare them. Only by repeated preparation does one learn to prepare the substrates according to Abderhalden's directions. Yet it is impossible, and everyone who has had personal experience in preparing substrates will agree to this, to make the carcinoma albumin appear in the same finely divided state that placenta albumin exhibits to the naked eye. Paradoxical as it may sound, the more one follows Abderhalden's directions in the preparation of the substrates the less one is likely to meet with specific reactions. A perfect placenta will give a positive reaction not only with a serum rich in ferments, as in the case of general paralysis in the last stages, or of old epileptic insanity with fits following on the top of one another, but also in a case of pulmonary tuberculosis that may fail to react with placenta prepared in a less elaborate way.

Besides the placenta peptone put on the market by Höchst, which, as can be seen from the table, has proved to be a far from infallible reagent for testing pregnancy, there are other preparations brought on the market by some people who are apparently in a great hurry to make the best out of Abderhalden's promising scientific work without even taking the trouble of giving to the "carcinoma extracts," &c., the proper external appearance that a reagent should have when prepared according to Abderhalden's instructions. Abderhalden himself is of opinion that it is premature, while the whole question is in the experimental stage, to put on the market any "diagnostica." I think that they can do even more harm to the field of research in question than those profound articles in which authors report on so many cases of pregnancy or tuberculosis examined without taking the trouble to examine even one normal case, or articles where every result of an occasional test is followed by learned deliberations about the rules for diagnosis, prognosis, and treatment of disease to be drawn from it.

The future will show how far the investigation of the serum for the presence of proteo- and peptolytic ferments will be made use of for the routine work of clinical examination. There is no doubt about the great service rendered by Abderhalden to the science of physiology and to medicine by introducing and

Table showing Results of Clinical Investigation.

No.	Dialysation process. Amount of serum used.	Dialysation process. Serum +	Optical method.	Diagnosis.
1			B + (·05), C + (·06)	Carcinoma of breast in a male.
2	1·5 —	Pl. (+), B.E. —, C.B. —		Pregnancy, normal, primipara, eighth month. Serum 3 days old.
3	(1·5) —	Pl. + +, C.B. —	C + (·05)	Puerpera, normal, third day.
4	1·5 —	Pl. +, C.B. —	A + (·05)	Pregnancy, normal, in labour.
5	1·5 —	Pl. +	A + (·06), C + (·09)	Pregnancy, normal, in labour.
6	1·5 —	Pl. +, C.B. —		Puerpera, third day, normal.
7	1·5 —	Pl. ((+)), C.B. ((+))	A — (·02)	Hæmorrhoids, male, healthy, age 31, before operation.
8			A — (·03)	Eczema.
9	(1·5) —	Pl. + +	A + (·06)	Puerpera, normal, 24 hours.
10	+1·5—	Pl. +, C.B. +	A ? (·04), C + (·07)	Carcinoma tongue, age 64. Operation 1904 for carcinoma right side of tongue. Now carcinomatous ulcer left side of tongue.
11	+1·5—	Pl. +, C.B. —	A — (·02), C ? (·04)	Puerpera, 2 hours post partum, primipara.
12	(1·5) —	Pl. +, C.B. —	B + (·05)	Pregnancy, normal, seventh month.
13	+1·5—	Pl. + +	B — (0)	Pregnancy, normal, seventh month, primipara.
14	1·2 —	Pl. +	B + (·05)	Pregnancy, normal, seventh month.
15	(1·5) —	Pl. + +	A + (·09)	Pregnancy, normal, eighth month, primipara.
16	+1·5—	Pl. +, S.M. + +	A + (·07), B + (·05), C + (·06)	Pregnancy, normal, sixth month.
17			A + (·05), B + (·05)	Fractured patella, male, aged 38.
18			A — (·02), B ? (·04), C — (·03)	Left inguinal hernia, male, aged 43, 2 days after operation.
19			A + ? (·04)	Pregnancy, ninth month.
20	(1·5) —	Pl. +, C.B. —, Lg.—, B.E.—	B + (·06), C — (·02)	Pregnancy, normal, multipara, ninth month.
21	1·0 —	Pl. + +	B + (·08)	Pregnancy, normal, primipara, second month.
22	1·5	Pl. + +, C.B. (+), Lg. +, B.E. —	B — (·02), C + (·07)	Pregnancy, normal. ninth month, multipara.
23			A + (·05), B — (·02), C ? (·04)	Carcinoma of breast.
24	1·0 —	Pl. —, Br. —, Lv. —	A — (·03), B — (·03), C — (·01)	? Twisted ovarian cyst. ? Tubal pregnancy. Patient operated. Diagnosis, ovarian cyst.
25	1·5 —	Pl. —, Lv. —	A + (·05), B — (·03), C — (·02)	Gonorrhœa, male,
26	1·5 —	Pl. —, St. —, Lv. —		Sycosis, male, treated with staphylococcus albus and acne vaccine. Serum, hæmolytic.
27	1·5 —	Pl. —, St. —, Br. —	B + (·07), C — (·01)	Pregnancy, normal, seventh month.
28			A + (·07)	Pregnancy, normal, ninth month, primipara.
29	1·5 —	Pl. —	B ? (·04), C + (·06)	Pregnancy, normal, eighth month, primipara.
30	(1·5) —	Pl. + +, Lv. (+)	A + (·07), C + (·06)	Pregnancy, normal, sixth month, multipara.
31	1·5 —	Pl. +, Lv. +, M. —	A + (·05), B + (·06), C + (·05)	Pregnancy, normal, seventh month, multipara.
32	(1·5) —	Pl. —	A — (·03), C— (·03)	Hernia, male. Operated 2 days before examination.
33	(1·5) —	Pl. ((+)), C.B. —	A + (·05), B — (·03)	? Ectopic gestation. ? Salpingitis. Patient operated next day. Diagnosis, salpingitis.
34	(1·5) —	C.B. (+), St.—	A ? (·04), B — (·03)	Carcinoma of breast. Chronic nephritis.
35	1·2 —	St. —		Patient treated with staphylococcus vaccine.
36	1·5 —	Pl. +	A + (·06), C + (·05)	Eclampsia.
37	1·5 —	Pl. —, C.B. —, Lg.M.	A + (·05), C ? (·04)	Hæmoptysis, male, aged 52. Cause? Ultimate diagnosis, cirrhosis of liver.
38	(1·5) —	Pl. —, Lg.M.		Periostitis of orbit.
39	1·5 —	Br. +, Ts. (+), Ov. +		Dementia præcox, male.
40	1·5 —	Pl. +, Br. ((+))	A + (·05)	Pregnancy, normal, eighth month, multipara.
41	1·5 —	Pl. +, Br. —	A + (·05)	Pregnancy, normal, ninth month, primipara.
42	1·5 —	Br. +, Ts. + +	A + (·05), B + (·05)	Epileptic, fit previous night, female, aged 55.
43	1·5 —	Pl. + +, C.B. —, M. +	C — (·03)	Carcinoma of the head of pancreas, jaundice, cachexia. Diagnosis confirmed by microscopical examination.
44	1·5 —	C.B., — M. —, Lv. —, *C.Lv. —	C — (·03)	? Carcinoma, abdomen. Result, no malignant disease.
45	1·5 —	Pl. +, C.B. —	A ? (·04), B — (·03)	Parturition, normal, 2 weeks.
46	1·5 —	Pl. +, M. + +, Lv. +, C.Lv. +	B + (·05)	Pregnancy, normal, seventh month.
47	1·5 —	Pl. (+), C.B. —	B + (·05), C — (·03)	Salpingitis. Oöphorectomy 3 weeks ago.
48	1·5 —	Pl. ((+))	A ? (·04)	Aneurysm, male, aged 40.
49	1·5 —	Pl. ((+))	A + (·06), B ? (·04), C ? (·04)	Hydatidiform mole, operated. ? Malignant. Result, no chorion epithelioma.
50	(1·5) —	Pl. +, M. + +	B + (·05), C + (·06)	Pregnancy, normal, primipara, seventh month.
51	(1·5) —	Pl. +, Br. —	B + (·06)	Pregnancy, normal, primipara, ninth month.
52	(1·5) —	Br. (+), M. + (+) Lv. (+)	B + (·06)	General paralysis of the insane, male.
53	1·5 —	Br. —, C.Lv. —	C — (·02)	Mania, chronic.
54	1·5 —	Br. +, Lv. + +		General paralysis of the insane.
55	1·5 —	Br. (+), Lv. (+), M. +		Epilepsy, insanity, fits on two previous nights.
56	1·5 —	Br. ((+)), Lv. (+), M. + +		Epileptic, insanity, last fit 6 weeks ago.
57	1·5 —	Br. —, C.Lv. —	C — (·02)	Abdominal tumour. Diagnosis? Operated, ovarian cyst.
58	1·5 —	Br. —, Ts. +		Dementia præcox, male.
59	(1·5) —	Pl. (+), Br. (+), C.B. (+)	B ? (·04), C + (·06)	Pregnancy, normal, primipara, sixth month.
60	1·5 —	Pl. +, Br. —, Lv. —	B ? (·04), C — (·03)	Pregnancy, normal, eighth month, primipara.
61	1·5 —	Pl. + +, Br. —, C.B. + +	B + (·11), C + (·05)	Fractured patella, operated 1 week previous to examination. Serum hæmolytic.
62	1·5 —	Pl. + +, Br. +	A — (·01), B — (0)	Pregnancy, normal, sixth month, primipara.
63	1·5 —	Pl. + +		Pregnancy, normal, sixth month, primipara.
64	1·0 —	Pl. —	A — (·02)	? Ovarian cyst. ? Tubal pregnancy. Operated, tubal pregnancy. Bleeding started 4 weeks previous.
65	1·5 —	C.B. + +, S. +, Lg. —	A — (·03)	Fibromyositis.
66	1·3 —	C B. ((+)), S. +		? Sarcoma vertebræ. ? Carcinoma. Result, sarcoma.
67	1·5 —	C.B. —, S. —, Lg. —	B — (·02), C — (·02)	Mediastinal sarcoma.
68			A — (·03), L ? (·04)	? Mediastinal tumour. Result, sarcoma.
69			B + (·06), L ? (·04)	Prolapse.
70			A_1 — (·02)	Chronic pulmonary tuberculosis, T.B. present, male.
71			B ? (·04), L — (·03)	Pregnancy, normal, primipara, sixth month.
72			A_1 + (·05), B ? (·04)	Pregnancy, normal, primipara, seventh month.
73			A_1 + (·06), B+ (·06)	Pregnancy, normal, primipara, seventh month.
74			W — (·02), A_1 ? (·04)	Pemphigus.
75	1·0 —	Pl.h. —, Pl.s. +, M.h. (+), M.s. —, Ty. —, Tm. (+), Ts (+)		Tubal pregnancy.
76	1·0 —	Pl. +, C.B. +, Br. —	A_1 + (·05), B + (·06)	Pregnancy, normal, eighth month, primipara.
77			A_1 ? (·04), B — (·03)	Sprained knee.
78	1·0 —	Pl. +, C.B. +	A_1 ? (·04), B? (·04)	? Chorion epithelioma. Result, no chorion epithelioma, mole.
79	1·0 —	Pl.h. + + +, Pl.s. +, Lg. — Lg.M. +, Lg.s. —	A_2 ? ·04, B + (·05), L — (·02)	Pregnancy, normal, primipara, seventh month.
80	1·0 —	Pl.h. + + +, Pl.s. +, Lg. —, Lg.M. +, Lg s. —	A_2? ·04, L — ·02	Pulmonary tuberculosis, third stage, T. hectic.
81	1·0 —	Pl.h. + +, Pl.s +, Lg. —, Lg.M. +, Lg.s. —	A_2 + ·05, B ? ·04, L ? ·04	Toothache.

* Primary carcinoma stomach.

Table showing Results of Clinical Investigation.—(Continued.)

No.	Dialysation process. Amount of serum used.	Dialysation process. Serum +	Optical method.	Diagnosis.
82	1·0 —	Pl. —, Ts. —, Ts.s. ((+)), Ov.s. ((+)), Br. —	A_2 — (·01)	Melancholia, female.
83	(1·0) —	Pl. —, Ts. —, Ov.s ((+)), Br. —		Dementia præcox, female.
84	1·0 —	Pl. —, Ts. —, Ts.s. ((+)) Ov.s. —, Br. —		Dementia præcox, male.
85	1·0 —	Pl. +, C.B. +	A_2 — (·03), S ? (·04)	Carcinoma of breast.
86	1·0 —	Pl. —, C.B. —, Pl.s. —	A_2 ? (·04), S ? (·04)	Rheumatism, no pain; no temperature at the time of blood-taking.
87	(1·0) —	Pl. ((+)), M. ((+)), Ty P. ((+)), Ov. + (+), Ov.s (+) +		Graves's disease.
88	1·0	Pl.h. (+), Pl.s. (+), Tm. (+), Ty.P. (+), Ts. (+)		Sprained semilunar cartilage, male.
89	(1·0) —	Pl.h. —, Pl.s. —, Tm. —, Ty P. —, Ts. —, Ov.h. —, Ov.s. —		Graves's disease.
90	1·0 —	Pl. —, C.B. —, C.Lv. —	B — (·03), Li — (·03)	Pregnancy, eighth month, primipara, normal.
91	1·0 —	Pl. —, C.B.((+)), C.Lv.—	A_2 — (·02), Li — (·02)	Pregnancy, ninth month, primipara, normal.
92	1·0 —	Pl. ((+)), C.B. —, C.Lv. —	A_2 — (·02), Li + (·05)	Injury to knee, male, aged 15.
93	1·0 —	Pl. ((+)), C.B. —, C.S. +	A_1 — (·03), A_2 — (·03) C — (·03)	Pregnancy, ninth month, primipara, normal.
94	1·0 —	Pl. —, C.B. —, C.S. +	A_1 — (·03), A_2 ? (·04) L — (·03)	Pregnancy, ninth month.
95	1·0 —	Pl. ((+)), C.B. —, C.S. —	A + (·05)	Gastric ulcer, male, aged 40.
96	1·0 —	Pl. +, C.S. —	A ? (·04)	Dilated stomach, male, aged 39.
97	(1·0) —	Pl. —		Normal, male, aged 54.
98	(1·0) —	Pl. +	A + (·06), B + (·06), L + (·05), Si — (·02)	Parturition, tenth day.
99	1·0 —	Pl. (+), C.B. ((+)), Pl.s. +, K. —	A_1 ? (·04), Li + (·05)	Pregnancy, seventh month, primipara, normal.
100	1·0 —	Pl. (+)	A_1 — (·02)	Pregnancy, eighth month, primipara, normal.
101	1·0 —	Pl. —, C.B. +, Pl.s. (+), K.—	A_1 — (·03), Li + (·05)	Normal, female, aged 30.
102	(1·0) —	Pl. +	A_1 — (·03), W — (·01)	Fractured femur, male, aged 50.
103	1·0 —	Pl. ((+))	A_1 ? (·04)	Pregnancy, fifth month, primipara, normal.
104	1·0 —	Pl. (+)	A' + (·05)	Pregnancy, seventh month, primipara, normal
105			A_1 + (·05), W + (·05)	Pregnancy, normal, eighth month, primipara.
106	1·0 —	Pl. —, C.B. (+), C.S. +, Lg. ++		Osteoarthropathie, cause?
107	1·0 —	Pl. (+), C.B. —, C.S. —, Lg. (+)	C — (·02), S — (·03)	Normal.
108	1·0 —	Pl. (+), C.B. +, C.S. —, Lg. ++		? Carcinoma of stomach.
109	1·0 —	Pl. ++, C.B. (+), C.S. +, Lg. +++		Pregnancy, in labour, normal, primipara.
110			B — (·02)	Pregnancy, seventh month.
111	1·0 —	Pl. +		Pregnancy, eighth month.
112	1·0	Pl. +		Lead poisoning. Abortion 2½ weeks before examination.
113			B + (0·5)	Pregnancy, seventh month, normal. Serum kept in ice-chest for 24 hours before examination.
114	1·0 —	Pl. +	B + (·07)	Pregnancy, seventh month, normal. Serum kept in ice-chest for 14 days before examination.
115	1·0 —	Pl. +, C.B. —, S. +		Sarcoma of breast.
116	1·0 —	Pl. +, C.B.—, S. +		Puerpera, tenth day, sapremia.
117	1·0 —	Pl. (+), C.B. —, S. (+)		Hæmorrhoids, female Last menstruation 2 weeks ago.
118	1·0 —	Pl. +, C.B. (+), M. (+)	B — (·03)	Vomiting. Acidosis? Pregnancy. Last menstruation 5 weeks ago.
119	(1·0) —	Pl. (+)	A_1 + (·06), W — (·03)	Pregnancy, seventh month, primipara. Serum kept in ice-chest 2 days before examination.
120	1·0 —	Pl. +, C.B. +, M. +		Carcinoma cervicis. Serum kept in ice-chest till next day.
121	(1·0) —	Pl. (+)	A_1 + (·06), W + (·06)	Chronic rheumatism, aortic regurgitation, wasting. Temperature normal 3 weeks.

Pl. = Placenta; Pl.h., human placenta; Pl.s., sheep's placenta. B.E. = Formed elements of blood. C.B. = Carcinoma of breast; C.Lv., carcinoma of liver; C.S., carcinoma of sigmoid flexure. S. = Sarcoma. S.M. = Sarcoma of mediastinum. Lg. = Lung; Lg.M., lung miliary tuberculosis; Lg s., sheep's lung. Br. = Brain. Lv. = Liver. St. = Emulsion of staphylococcus albus. M. = Muscle; M.h., human muscle; M.s., sheep's muscle. Ts. = Testicle; Ts.s., sheep's testicle. Ov. = Ovary; Ov.s., sheep's ovary. Ty. = Thyroid; Ty.P., thyroid parenchymatous. Tm. = Thymus. K. = Kidney.

continuously working at the improvement of his new methods of research.

At present, according to our experience, the less control one uses in examining cases the better results one is likely to get. If anyone were to examine 100 cases of pregnancy and as many cases of robust healthy adults with placenta albumin only, the probability is that by proper working he would get an expected result in nearly every case examined and declare that Abderhalden's test is a specific test for pregnancy. Let him now use other well-prepared substrates, say a carcinoma albumin; he will come to the conclusion that the Abderhalden test is not a specific one, but that the serum of a pregnant patient occasionally gives a positive reaction with carcinoma albumin. If he will use besides a few other substrates—e.g., human and sheep's testicles and human muscle—he will find himself still more dubious as to the specificity of the proteolytic ferments in blood serum. He will lose all faith in it as things stand now if, instead of taking healthy people as controls, he examines patients' serum collected at random in medical and surgical wards.

If someone will compare the conclusions that I have come to at the end of a year's experience with Abderhalden's methods of investigation, with my article on the subject in the *London Hospital Gazette*,[3] independently of my own experimental work, he may be surprised at the optimistic tone of the latter. But there is nothing surprising in it. There is a distinct difference between theory and practice. Ehrlich's chain theory preceded the complement-deviation test. And I am still, as ever, full of admiration for Abderhalden's theoretical views on the action of ferments in the animal organism, and firmly believe that in time one will be able to demonstrate specific ferments in the blood serum.[4]

Cambridge-terrace, Regent's Park.

[3] London Hospital Gazette, xx., 8, 1914.

[4] For a complete bibliography see fourth edition of Abderhalden's "Abwehrfermente." Verlag von Julius Springer, Berlin.

A CASE OF X RAY DIAGNOSIS OF A CHRONIC CEREBRAL ABSCESS

SECONDARY TO FRONTAL SINUS SUPPURATION.

BY WILFRID GLEGG, M.D., C.M. EDIN., M.R.C.P. EDIN.,
SURGEON TO THE EAR AND THROAT HOSPITAL, BIRMINGHAM;
AND
HAROLD BLACK, M.B., B.CH. BELF., M.R.C.P. LOND.,
RADIOGRAPHER TO THE QUEEN'S HOSPITAL, BIRMINGHAM.

THE patient, a private on the Reserve list of the 2nd Battalion Royal Warwickshire Regiment, was sent to the Ear and Throat Hospital by Mr. Beatson Hird on acount of the persistence of discharge from a fistulous opening in the right frontal region, in the lower part of a depressed scar above the inner end of the right eyebrow. The history was as follows. In April, 1913, the patient attended the eye department at the General Hospital with symptoms of acute inflammation in the right frontal sinus. He complained of pain, and in the upper part of the right orbit there was an inflammatory swelling, which was incised by Mr. Hird. Carious bone was detected in the orbital roof, and through a necrotic area a probe could be passed into the right frontal sinus. The patient was sent to the surgical side, where a radical operation was performed on the right frontal sinus, the particulars of which have been supplied by Mr. H. H. Sampson, resident surgical officer. The right frontal sinus was a shallow one. Its entire anterior wall was removed, and also the mucous lining of the sinus, in a state of polypoid degeneration, showing that the cavity had been the seat of chronic disease with a recent acute exacerbation. There was no sign of caries on the posterior wall. An opening was found through the median partition into the left frontal sinus. Drainage into the nose was attempted on the right side, and the edges of the wound were kept apart, but in spite of this the discharge continued externally from the lower part of the wound.

Reproduction of skiagram showing site of abscess injected with bismuth paste.

At a subsequent operation an area of carious and necrotic bone was found in the centre of the posterior wall of the sinus, and by its removal the dura was exposed. Purulent discharge still continued from the wound.

In September, 1914, the patient was admitted to the Ear and Throat Hospital for further treatment. No evidence of disease was observed within the nasal cavities. After determining the upward and inward direction of the fistula it was decided to make use of Beck's bismuth paste to demonstrate, if possible, the source of the discharge. For this purpose a small amount of it was injected in a warm fluid state through the fistula and was retained for the most part. Radiograms then were made on two occasions in postero-anterior and lateral directions, and with some surprise it was seen that the bismuth had collected in the right frontal lobe of the cerebrum. (See illustration.) Under an anæsthetic a flap was raised along the lines of the former incision to expose the right frontal bone, where an opening was found about the size of a shilling exposing the dura. The bone edges were smooth and the surrounding bone was healthy in appearance. The fistulous track from the lower part of the skin incision led to an opening in the dura surrounded by granulations at the upper edge of the hiatus in the bone, and sinus forceps inserted through it allowed about a drachm of pus to escape. Resistance to the passage of the forceps was felt at a distance of 2 inches from the surface. After removing bone around the fistula a strip of gauze was inserted into the abscess cavity. Through an opening in the median partition between the frontal sinuses several small polypi were removed from the left sinus, and the passage into the nose made wider on that side. The right infundibulum had become obliterated. The external wound was left open and the discharge of pus continued for four weeks, but ceased when the gauze drain finally was removed and after an application of silver nitrate had been made to the granulations around the opening in the dura. The wound now is closed, and the patient remains in good health.

It is interesting to note that the patient's general state gave no indication of the presence of a cerebral abscess, owing, no doubt, to the absence of pressure from retention of the contents. The fistula allowed discharge to overflow, but the drainage had been insufficient to permit closure of the abscess cavity until the operation remedied the condition. The case illustrates the use of bismuth combined with an X ray examination in localising the site of the abscess before operation, and its value as an aid to diagnosis of an otherwise obscure source of a purulent discharge.

Birmingham.

A NOTE ON SOME CASES OF GUNSHOT FRACTURE.

BY J. JACKSON CLARKE, M.B. LOND., F.R.C.S. ENG.,
SENIOR SURGEON TO THE HAMPSTEAD AND NORTH-WEST LONDON HOSPITAL; SURGEON TO THE ROYAL NATIONAL ORTHOPÆDIC HOSPITAL.

SINCE shortly after the beginning of the present war beds both at the Hampstead and the Orthopædic Hospitals have been occupied by wounded soldiers. Among the many cases of wounds of various kinds a considerable number have involved fracture of one or more bones. In studying the fractures we have had valuable help from the radiographers, Dr. Stanley Melville at the Orthopædic Hospital and Mr. Cyril Thatcher at Hampstead. It seems worth while to put on record a few of the more typical cases.

CASE 1. *Fracture of the ulna by rifle bullet* (Fig. 1).—As shown in the radiogram the fracture is typical of the damage done to a bone when it is struck vertically by a modern conical bullet travelling at a high velocity; there is a central space, and around it many fragments displaced

outwards from the path of the bullet. The wounds both of entry and of exit were small and had healed when the patient was received at Hampstead from the Royal Herbert Hospital, Woolwich. The patient had absolute ulnar paralysis below the level of the injury.

In the course of five weeks the fracture became solidly united, and I then operated on the ulnar nerve, three-

FIG. 1.

A typical rifle-bullet fracture of the shaft of the ulna.

quarters of an inch of which had been destroyed by the bullet. The shortening of the nerve made it necessary to displace its upper part to the front of the internal condyle before the freshened ends could be comfortably brought together and stitched with catgut. Sensation began to return a fortnight later.

CASE 2. *Fracture of the ulna with comminution both of the bone and of the bullet.*—In this case there was only one external wound, and it was healed when the patient came into hospital. The missile was probably a leaden shrapnel bullet, which is broken into fragments, as shown in Fig. 2. Union was slow, but with the aid of regular massage mobility and crepitus, both pronounced at first, gradually diminished, and when the patient was discharged to convalesce the continuity of the bone was all but restored.

CASE 3. *Fracture of the shaft of the humerus by a shrapnel bullet.*—The patient, a dragoon, was wounded in the retreat from Mons, and remained in the saddle for some hours after being struck. The wound where the bullet entered over the outer and lower part of the deltoid had healed when the patient came into hospital a fortnight after it was received. The radiogram showed some traces of metal separated from the bullet in its passage through the bone. Union was complete in five weeks, and then I operated to remove the bullet, which gave the patient some inconvenience. It lay in the substance of the serratus, and on examination proved to be a leaden sphere about half an inch in diameter. Under massage and exercises the range of movement was restored to the normal, and the muscular power improved.

CASE 4. *Fracture of the shaft of the femur by rifle bullet, which could be felt under the skin on the outer aspect of the limb as is shown in the radiogram* (Fig. 3).—The wound of entry had healed when the patient, a Belgian, came into the hospital. The position of the fragments was even worse than appears in the radiogram, and after four weeks there was no sign of uniting. The patient is a somewhat delicate man, and like many others of the wounded or sick soldiers suffered from pyorrhœa. The latter having been energetically treated for a week previously, I dealt with the fracture by open operation. The bullet lay in a cavity only slightly larger than itself and lined by granulations blackened by the stain of the metal, the nickel coat of the bullet being intact. The fractured surfaces of bone were freely exposed through an antero-external incision. The fragments were separated by a portion of the crureus muscle; they were freshened, and a little callus was removed.

The patient's condition made any long operation unwise, so an encircling loop of stout silver wire was used to hold

FIG. 2.

A shrapnel-bullet fracture of the shaft of the ulna.

the fragments together, the loop being itself kept from slipping by a short screw inserted into one fragment. The limb was put up on a long splint and a 12 lb. extension applied. The position was good, there being about half an inch of shortening. In this case, owing to the fragments being separated by muscle, there was no chance of union apart from open operation, but it was with reluctance that I had resort to operation, because I had previous experience of

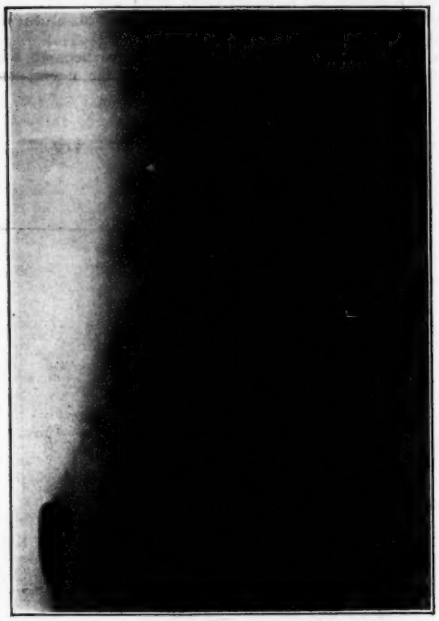
failure of union of fractures in subjects of pyorrhœa after open operation and in spite of aseptic healing of the operated parts. Five weeks after operation there was an abundant callus, and the limb was put up in plaster-of-Paris bandages to enable the patient to get about on crutches.

CASE 5 *Fracture by rifle bullet of the right radius* (Figs. 4 and 5).—The wound of entry was on the outer aspect of the forearm; that of exit on the front; the latter was as large as a five-shilling piece, and from both free suppuration was taking place.

I explored the parts and found that the loose fragments shown in the radiogram were imbedded in the wall of a cavity of the size of a pigeon's egg beneath the flexor muscles. Having removed these fragments and provided for free drainage, I dealt with the broken bone in a way that in spite of theoretical objections has proved successful in my hands. The fragments were drilled and a wire passed through the holes and brought out at the wound and there twisted. Figs. 4 and 5 show the improved position thus obtained. When union has taken place the wire is removed in septic cases, whilst in aseptic conditions, the wire being firmly incorporated in the bone, the ends of the wire are merely cut off flush with the bone. Used in this way the wire secures a good position of the fragments, lessens pain, and acts as a drain. More elaborate modes of fixation are to be avoided in such cases. Five weeks after the operation, all suppuration having ceased and union of the fragments being firm, the wire was removed, and the patient will be little, if any, the worse for his wound.

CASE 6. *Transverse fracture through the left humerus just above the epicondyles*.—The patient, a sturdy infantryman, was admitted with a stiff elbow, painful and almost of double its normal width. Both wounds were healed. There was partial ulnar paralysis. A radiogram showed several fragments below the line of passage of the bullet, and some of them had been displaced laterally. I opened the joint through an incision curved upwards, and this having been reflected to expose the olecranon, the latter was cut through at its base, revealing six separate fragments. These I removed; then, having shaped the lower surface of the upper fragment and re-attached the olecranon by a wire, the wound was closed and the limb put up on an angular splint. The patient has now a useful elbow with about 90 degrees of movement. The ulnar paresis has disappeared.

FIG. 3.



A rifle-bullet fracture of the shaft of the femur; the bullet is seen lying close to the surface of the limb.

FIG. 4.

A rifle-bullet fracture of the radius.

FIG. 5.

The same as Fig. 4 after temporary wiring; the author's method of treating compound fractures of long bones.

CASE 7. *Fracture of the upper end of the tibia into the knee-joint*.—The patient had been struck on the front of the knee by the brass cap of a shell. There was no external wound. The joint was distended with fluid and there was deformity of the limb, which was in the state of genu valgum.

The joint was opened by a transverse cut, the knee-cap being divided across. A teacupful of clot and serum having been removed, it was seen that the inner tuberosity was broken off and the fragment displaced downwards; the posterior crucial ligament was torn through at its femoral attachment. The fragment of bone was forced into place without much difficulty, and the patella having been drilled and wired in two places and the synovial membrane and capsule stitched, the wound was closed. Three weeks later passive lateral movements of the patella were smooth, and the patient will probably have a useful and movable knee-joint.

In conclusion I should like to acknowledge the great assistance I have received in the above and many kindred cases from Dr. G. A. H. Barton, anæsthetist, and from Mr. J. B. Truter, house surgeon at Hampstead, and Mr. Renfrew White, house surgeon at the Orthopædic Hospital.

Portland-place, W

PELLAGRA IN ANTIGUA.

BY W. M. McDONALD, M.R.C.S. ENG., L.R.C.P. LOND.,
MEDICAL SUPERINTENDENT, THE HOSPITAL, ANTIGUA, WEST INDIES.

THIRTY-TWO cases of pellagra have come under my notice here during 1913, 14 at the lunatic asylum and 18 at the hospital. Five of these in the lunatic asylum came from Dominica, 5 from St. Kitts, 1 from the Virgin Islands, and the remainder of the cases, 21 in number, have all originated in Antigua. There have been 10 deaths from pellagra in the lunatic asylum during the year and 1 death in the hospital. Pellagra was first reported in Antigua in 1909, and since then an increased number of cases have been recorded every year. It is impossible to say how long the disease may have existed here, as it is a disease that has only of recent years attracted universal attention, and was not therefore looked for or diagnosed here. A disease known locally as "rum burn" has long been prevalent here; these cases were most probably cases of pellagra in alcoholic subjects.

Pellagra, however, is undoubtedly endemic in Antigua. This fact is of vital importance to students of the disease in its bearing on (1) the opinion of the Italian medical schools and other investigators, that pellagra is a food disease caused by the ingestion of bad maize; and (2) the opinion of Sambon and certain American investigators that pellagra is an insect-borne disease. The bearing of this fact on the study of the disease can best be seen by comparing the theories advanced by the exponents of the two great rival theories. We can then see to what extent local conditions conform to either of these theories. For this purpose I submit the tables of comparison herewith attached.

TABLE I.—*Theories of the exponents of the parasitic theory as opposed to the maize theory.*

A. Sambon's reasons (1910) for believing that it is carried by an insect, most probably by the simulium fly.

1. The topographical distribution of pellagra does not coincide with that of maize consumption.
2. The disease occurs frequently in persons who have seldom or never partaken of maize as an article of food.
3. Preventive measures based on the maize theory have failed.
4. There is no foundation for the belief that pellagra broke out in Europe soon after the introduction of maize from America.
5. It is not directly contagious.
6. It presents a seasonal incidence—viz., spring and autumn.
7. Simulium in its imago stage appears to affect the same seasonal incidence.
8. Simulium, so far as is known, affects the same topographical conditions as pellagra.
9. It is practically restricted to only one class of people—viz., the agricultural labourer—owing to greater exposure to infection.
10. Simulium has a wide geographical distribution which appears to correspond with that of pellagra.
11. Pellagra stations are closely associated with streams of running water.
12. That this theory of its being conveyed by simulium explains most admirably the limitation of the disease to agricultural labourers, *a limitation which nothing else can explain in a satisfactory manner.*

B. Thompson McFadden Pellagra Commission, 1913.

1. The supposition that the ingestion of good or spoiled maize is the essential cause of pellagra is not supported by our study.
2. No specific cause of pellagra has been recognised.
3. We are inclined to regard intimate association in the household and the contamination of food with the secretions of pellagrins as possible modes of distribution of the disease.
4. We have discovered no evidence incriminating flies of the genus simulium *except their universal distribution throughout the area studied.* If it is distributed by a blood-sucking insect stomoxys calcitrans would appear to be the most probable carrier.
5. Pellagra is in all probability a specific infectious disease communicable from person to person by means at present unknown.

TABLE II.—*Theories of the exponents of the maize and bad food theories.*

A. Italian theories as summarised by Lavinder, 1909.

1. Pellagra is found as an epidemic disease only in those countries where maize is extensively used as an article of food by the *poorer classes*, although there are vast tracts where maize has been grown and used as a food for many years and yet no pellagra has appeared.
2. Countries in which maize is not grown or used for food, even though contiguous to pellagrous sections, are free of pellagra (see Lombroso, Procopin, Babes, Sion, and others).
3. A change of food among individuals or groups of individuals brings constantly a diminution or disappearance of pellagra.
4. History and observation show clearly that the first appearance of pellagra in Europe followed more or less closely the introduction of maize into Europe.

B. Dudgeon on pellagra in Egypt, 1910.

1. Pellagra is undoubtedly confined to people whose staple diet is maize. It is very uncommon among the rich agricultural class, though it does occur.

TABLE III.—*Facts from a report on 1426 cases of pellagra in Kentucky, Georgia, and South Carolina, 1913, by Robert Grimm, Surgeon in the United States Public Service.*

1. Percentage of cases among whites, 85·7; among the coloured population, 14·3.
2. Of 323 of these cases personally seen and investigated each one gave a history of more or less regular use of corn as a diet.
3. Most cases had been subsisting almost entirely on food bought at the stores—viz., canned, salted, preserved foods.
4. Most cases were found among renters and croppers who live under conditions of poverty and bad hygiene.
5. Six cases of the 323 personally seen occurred in persons in comfortable circumstances.

The facts of the existence of pellagra here which have special bearing on these theories are: 1. Antigua was visited in 1913 by Dr. Sambon, of London, and by Mr. Jennings, of the American Bureau of Entomology, in the course of their investigations of pellagra. Neither of them was able to find any simulium in Antigua. 2. There is very little running water to be found in Antigua, and none of the cases reported have any connexion whatever with running water. 3. No cases have been reported among the white population; all the cases occurred among the blacks, who generally live in conditions of poverty and bad hygiene. 4. All the cases have occurred among the class whose principal diet is cornmeal and salt fish. 5. Cornmeal is also largely partaken of by the white population, among whom no cases of pellagra have occurred; but in their case the cornmeal is taken in conjunction with an otherwise generous and varied diet.

The first and second of these facts have a distinctly adverse bearing on the simulium hypothesis. (Compare Table I. A, 7, 8, 10, 11.) The third of these facts may be considered first, as bearing on the stomoxys calcitrans theory. (Table I. B, 4.) This insect is found here, and is most frequently discovered in the neighbourhood of out-buildings and

stables which are the places frequented by the blacks and not frequented by the whites. (Compare also Table I. A, 9, 12.) This fact is also of very great importance, in view of the fact that Grimm, in investigating 1426 cases of pellagra among whites and blacks both living under bad economic conditions, found that 85·7 per cent. of the cases occurred among whites, and this in a community in which he states the negroes equal or probably outnumber the whites. He further states that in several districts he was told by physicians that they had met with several cases of pellagra among whites, but had never seen a case among the blacks. His facts justify him therefore in drawing the conclusion that among blacks and whites living under the same conditions whites are more susceptible to the disease.

In the light of this fact it is all the more remarkable that all the cases in Antigua occur among the blacks and none among the whites. This might be accounted for by the fact that blacks are more exposed to being bitten by the stomoxys, or equally by the fact that the whites live under far better economic conditions than the blacks. This fact is also of importance as bearing on the food theory, and in this connexion it must be considered in conjunction with facts 4 and 5. Fact 4 taken by itself would appear to bear out the maize theory, and is in accord with Lavinder's statement (Table II. A, 1) and with Dudgeon's experience in Egypt (Table II. B, 1). Taken in conjunction, however, with fact 5, its importance as a factor in favour of the maize theory is greatly minimised, and when we consider that pellagra is found among the blacks who live on cornmeal + a generally inadequate and improper diet, and pellagra is not found among the whites in Antigua who are really more susceptible to it, and eat cornmeal + an adequate and varied diet, it will be seen that the facts of its occurrence here, while not incompatible with the theory that it is conveyed by the stomoxys calcitrans, are most in accord with the theory that the causative agent in pellagra is not so much the ingestion of spoiled maize as the deficiency of some essential item of diet; in a word, that it is caused not by bad food but by deficient food. This theory is in accord with many of the arguments stated in all three tables—Tables I. A, 1, 2, 3, 4, 5, 9, 12; B, 7; Table II. A, 1, 3; B, 1; Table III., 2, 3, 4. With regard to the infective nature of pellagra, I have not been able to trace any connexion between any of the cases which have come under my observation.

Antigua.

LIVINGSTONE COLLEGE.—"Livingstone College Year Book," which usually makes its appearance in the summer, has this year been published in the present month, and contains a report of the work of the session 1913–14. This is the last report of the work of the College under the principalship of Dr. C. F. Harford, who has now given place to Dr. Loftus E. Wigram, and the extracts received from old students of the College afford testimony of the need for such an institution and of the affection in which the late Principal and his wife are held by those who have passed through the College, these numbering 548 in 21 years, the period of the existence of the College. The teaching is intended to help missionaries to take care of their own health and to give them sufficient medical knowledge to deal with simple cases when qualified medical aid is not at hand. The "Livingstone College Year Book, 1915," has a very good reproduction of a photograph of Dr. Harford as a frontispiece, and can be obtained from the College, Leyton, E., price 6*d*.

THE EFFECT OF CALCIUM CHLORIDE ON HÆMOLYSIS OCCURRING "IN VIVO."

BY W. W. C. TOPLEY, M.B., B.C. CANTAB., M.R.C.P. LOND.,
BACTERIOLOGIST TO CHARING CROSS HOSPITAL;
AND
S. G. PLATTS, M.B., B.C. CANTAB.,
DEMONSTRATOR OF BACTERIOLOGY, CHARING CROSS HOSPITAL MEDICAL SCHOOL.

(*From the Bacteriological Department of Charing Cross Hospital.*)

IT has long been known that certain metallic salts, and especially the salts of the metals of the alkaline earth series, exert *in vitro* an inhibitory action on the lysis of red blood corpuscles by normal and immune hæmolytic sera. This phenomenon was first demonstrated by Nolf,[1] and the subsequent observations of Markl,[2] Ehrlich and Sachs,[3] Vincent and Dopter,[4] Sutherland and McKay,[5] and others have all tended to confirm his results. The inquiry was taken a step further by Markl,[2] who showed that in the case of the acid phosphate of sodium and certain other salts the absence of hæmolysis resulted from the failure of the complement to combine with the red-cell-antibody complex. These results were confirmed by Ehrlich and Sachs,[3] though these authors do not accept the whole of Markl's explanation.

As a result of the antihæmolytic action which they display in test-tube experiments, the salts of calcium have been put forward as valuable therapeutic agents in cases in which hæmolysis is an important factor, notably in blackwater fever. The treatment of this condition by calcium chloride has been urged especially by Vincent[6] and by Sutherland and McKay.[5] The former asserts that, in addition to its inhibitory action against various hæmolytic sera, this salt is also antihæmolytic in the presence of the salts of quinine, to which has been ascribed by some a leading rôle in the production of hæmoglobinuric fever in malarial patients. MacGilchrist,[7] however, has been unable to confirm these results.

Since the assumption of the therapeutic value of the salts of calcium in conditions which involve hæmolysis is based almost entirely on test-tube experiments, and since we have plentiful examples of the difficulties which arise in applying *in vitro* findings to the solution of problems which involve similar processes occurring in the living subject, it would seem to be of interest to determine whether the antihæmolytic action of calcium chloride is as potent in the animal body as it is in the test-tube. An opinion on this point possessing a considerable degree of probability may be formed from a consideration of the way in which this salt acts. If the result of its presence in a hæmolytic mixture is merely to prevent the fixation of complement by the red-cell-antibody complex, or to inhibit the action of the former without permanently affecting either the red cells or the hæmolytic antibody, then it would seem highly improbable that any useful therapeutic result could be obtained. For unless the concentration of the salt could be maintained at a sufficiently high level at the site of the hæmolytic process, and as long as the hæmolytic agent was in operation, the onset of hæmolysis would be only slightly delayed; since neither the animal's red cells nor the hæmolytic antibody would be in any way modified, and the

necessary supply of complement would be always present. We already know that many of the metallic salts act in exactly this manner, and a series of experiments were performed to determine whether the same fact held true for calcium chloride.

Experiment.—A series of tubes was put up containing in each case 0·5 c.c. of a 1/20 suspension of washed sheep corpuscles in normal saline, 0·5 c.c. of a 1/10 dilution of fresh guinea-pig serum, and 0·5 c.c. of a dilution of an inactivated hæmolytic serum (rabbit *v.* sheep) containing 4 minimal hæmolytic doses. To each tube was added a varying amount of a 10 per cent. solution of pure calcium chloride, and finally the contents of each tube were made up to the same total volume by the addition of the requisite amount of normal saline solution. The whole series was then incubated at 37° C. for one hour. At the end of this time the tubes were inspected, and those which showed no obvious hæmolysis were centrifugalised and again examined.

The results were as follows:—

Amount of 10% calcium chloride added.	Hæmolysis.	Amount of 10% calcium chloride added.	Hæmolysis.
0·1 c.c.	Faint trace.	0·04 c.c.	Almost complete.
0·09 c.c.	Trace.	0·03 c.c.	Complete.
0·08 c.c.	Very marked.	0·02 c.c.	,,
0·07 c.c.	,,	0·01 c.c.	,,
0·06 c.c.	,,	0·00 c.c.	,,
0·05 c.c.	Almost complete.		

The supernatant fluid was then pipetted off from the two tubes showing only a faint tinge of hæmolysis. To the deposited red cells were added in one case 1 c.c. of saline and 0·5 c.c. of the diluted guinea-pig serum, to the other 1·5 c.c. of saline. The tubes were well shaken and again incubated for 1 hour at 37° C. At the end of this time the tube to which complement had been added showed complete hæmolysis; the tube which had received only saline showed none. This experiment was repeated with varying dilutions of calcium chloride, always with the same result.

These results show that calcium chloride falls into line with other metallic salts, in so far as it has no action on either the red cells or the hæmolytic antibody, nor does it prevent the combination of these two elements in the concentrations here employed. For the reasons mentioned above, therefore, we should expect that its antihæmolytic action would be less in evidence *in vivo* than *in vitro*.

We next proceeded to put the question to experimental proof, employing in all cases rabbits as the subjects of experiment, and a hæmolytic serum which was obtained by the repeated intraperitoneal injection of washed rabbit corpuscles into guinea-pigs. The serum was inactivated by heating for 30 minutes at 55° C., and then stored on ice until used.

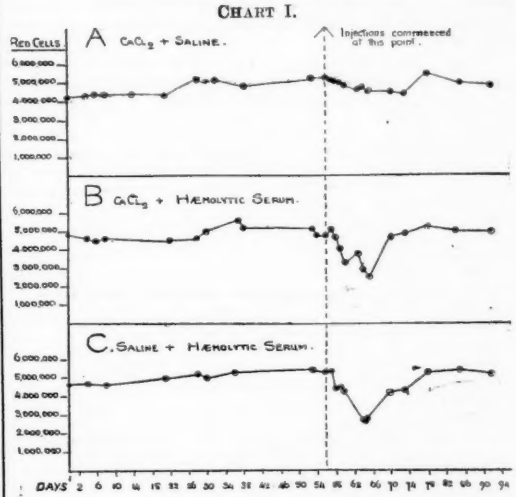
We would point out here that the experience obtained by a large number of consecutive red-cell counts, carried out on individual rabbits, has convinced us that the variations in the results obtained from day to day are much more considerable than in the case of a similar series of counts carried out in the human subject. The method employed was to take up 5 c.mm. of blood in a graduated pipette and transfer it to 995 c.mm. of normal saline containing 1 per cent. of sodium citrate and a trace of formalin. The count was made in an ordinary Thoma-Zeiss counting chamber. The blood was obtained by puncturing one of the smaller ear veins, and in each case two exactly similar dilutions were prepared and counts made from each, the results being averaged. Even when these precautions were taken considerable differences between daily counts were observed, and for this reason every animal employed was kept for some weeks under constant conditions, and then several successive counts were made, so that a reliable standard could be obtained for observing subsequent variations. The injections were, in almost all cases, given into the marginal vein of the same ear which had been punctured in making the previous counts. The other ear was employed in the subsequent observations. Blood was collected for counting from each rabbit immediately before making the inoculation.

Experiment.—Three rabbits, "A," "B," and "C," were taken. To "A" was administered a series of intravenous injections of a 10 per cent. solution of calcium chloride, followed after an interval of ten minutes by the intravenous injection of a certain amount of normal saline. "B" was treated in the same way, except that the normal saline was replaced by an equal quantity of the hæmolytic serum. In the case of "C," saline was substituted for the calcium chloride solution, the hæmolytic serum being injected as in the case of "B." The actual injections were carried out as follows:—

Day of experiment.	"A"		"B"		"C"	
	10% calcium chloride.	Normal saline.	10% calcium chloride.	Hæmolytic serum.	Normal saline.	Hæmolytic serum.
1st	1 c.c.	0·2 c.c.	1 c.c.	0·2 c.c.	1 c.c.	0·2 c.c.
2nd	,,	0·5 c.c.	,,	0·5 c.c.	,,	0·5 c.c.
3rd	,,	,,	,,	,,	,,	,,
4th	,,	,,	,,	,,	,,	,,
5th	,,	,,	,,	,,	,,	,,
6th	,,	,,	,,	,,	,,	,,
8th	,,	,,	,,	,,	,,	,,

The results are clearly shown in Chart I.

CHART I.



From this experiment we see that a relatively large dose of calcium chloride administered intravenously does not serve to inhibit the action of a hæmolytic serum injected by the same route ten minutes later. Evidence confirmatory of these results was obtained in two further series of experiments. In the first series a preliminary *in vitro* experiment was made and the exact quantity of calcium chloride necessary completely to inhibit hæmolysis by 0·1 c.c. of the immune guinea-pig serum in the presence of a relatively large excess of complement (fresh rabbit serum) was determined.

Experiment.—Each tube contained 0·5 c.c. of a 5 per cent. suspension of washed rabbit corpuscles in normal saline, and 0·1 c.c. of the inactivated hæmolytic serum (guinea-pig *v.* rabbit). A 10 per cent. solution of calcium chloride in distilled water was then added in the amount indicated in the table, and sufficient saline was added to equalise the total volume in each tube. Finally, 0·5 c.c. of fresh undiluted rabbit serum was added to each tube to serve as complement. Incubation was carried out for one hour at 37° C. with the following results:—

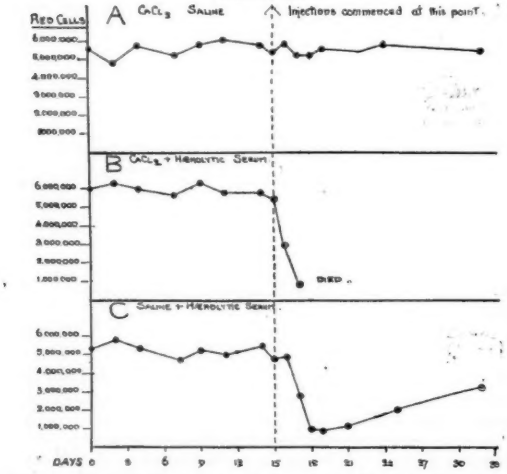
Amount of 10% calcium chloride added.	Hæmolysis in 1 hour at 37° C.	Amount of 10% calcium chloride added.	Hæmolysis in 1 hour at 37° C.
0 c.c.	Complete.	0·15 c.c.	Slight.
0·025 "	"	0·2 "	None.
0·05 "	"	0·25 "	"
0·075 "	"	0·5 "	"
0·1 "	Almost complete.	0·75 "	"
		1 "	"

Thus, 0·02 grm. of calcium chloride served completely to inhibit the hæmolysis caused by 0·1 c.c. of this immune serum acting on rabbits' red cells in the presence of a relative excess of rabbits' complement.

Now it is clear that the ratio between the amount of the calcium chloride and the amount of hæmolytic serum is the only one which we can keep constant in passing from *in vitro* to *in vivo* conditions, since the total bulk of red cells in the animal's body and the total available complement at any given time are beyond our control. We know indeed from the study of Muir and McNee[8] that a serum hæmolytic for rabbits' red cells produces, when injected into this animal, a degree of blood destruction incomparably greater than one would be led to expect from a measurement of its activity in the test tube. A mixture was prepared containing hæmolytic serum and calcium chloride in such proportions that no hæmolysis would occur *in vitro*, and this mixture was administered intravenously.

Experiment.—Three rabbits, "A," "B," and "C," were taken. "A" received 2 c.c. of normal saline and 1 c.c. of a 40 per cent. solution of calcium chloride. "B" received

CHART II.



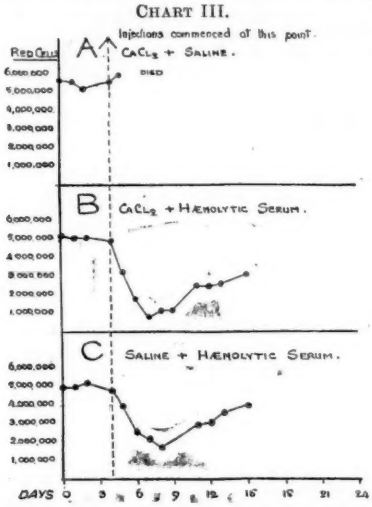
2 c.c. of hæmolytic serum and 1 c.c. of 40 per cent. calcium chloride solution. "C" received 2 c.c. of the same serum and 1 c.c. of normal saline. All injections were given intravenously, and the two constituents were mixed in the syringe immediately before inoculation in each case. Chart II. shows clearly the course of events. As before, counts taken before as well as after the inoculations are included, and the vertical line shows the point at which these were given.

This experiment demonstrates conclusively that a mixture of hæmolytic serum and calcium chloride which produces no lysis in the test tube is actively lytic when introduced into the general circulation. Indeed, any difference which is present between the two animals which received the serum is in favour of that one which did not receive the calcium salt. Too much stress should not be laid on the death of rabbit "B" in this experiment, since rabbit "C" also became acutely ill and at one time appeared moribund. The control animal showed some symptoms of distress immediately after receiving the calcium chloride injection, but quickly recovered and remained in apparently normal health.

A final series of experiments was made in which the initial steps were identical with the above, but the animal which received serum and calcium chloride and that which received saline and calcium chloride were each given further daily injections of the same amount of calcium chloride solution, while the rabbit which was originally given serum and saline received further daily injections of the same amount of saline solution.

Experiment.—Three rabbits, "A," "B," and "C," were taken. "A" received a mixture of 2 c.c. saline and 1 c.c. 40 per cent. calcium chloride solution, and thereafter a daily injection of 1 c.c. 40 per cent. calcium chloride until death. "B" received a mixture of 2 c.c. of hæmolytic serum and 1 c.c. of 40 per cent. calcium chloride solution, and thereafter a daily injection of 1 c.c. 40 per cent. calcium chloride solution until the termination of experiment, except on the

CHART III.



sixth day after the first injection, when no calcium chloride was given. "C" received a mixture of 2 c.c. of the same hæmolytic serum and 1 c.c. of normal saline solution, and thereafter 1 c.c. of normal saline until the termination of the experiment, except on the sixth day after the first injection.

As before, all injections were given intravenously, except that the sixth and subsequent inoculations of calcium chloride solutions into rabbit "B" were given intramuscularly on account of the fact that a large œdematous swelling had formed in the neighbourhood of the marginal ear-vein used for the previous intravenous injections. A similar change in the site of injection was at the same time made in the case of rabbit "C" in order to keep the results comparable. The results are charted in the same way as for the preceding experiments. (See Chart III.)

The results obtained throughout were thus entirely concordant. No evidence whatever was obtained of any protective action exerted by

calcium chloride on red cells, which were subjected in the animal body to the action of a specific hæmolysin. Indeed, any differences in the parallel experiments were in the nature of excessive lysis in the cases of those animals which were treated with this salt.

It may be argued that the administration of the salt was too infrequent to admit of the steady maintenance of a sufficient concentration in the tissues and blood stream. This objection will not hold if we remember the relatively enormous doses of the drug employed, corresponding to about 16 grm. given intravenously to the human subject, a dose, moreover, which approached closely the lethal limit, as is shown by the death of a control animal immediately following the second injection in the last experiment, and by the fact that rabbit "B" in this series became greatly distressed after each injection of the salt. We know also from the work of Mendel and Benedict,[9] Boggs,[10] and others, that the excretion of calcium is comparatively slow, and we may hence be certain that in the last experiment the concentration of the salt in the tissues was maintained at a level beyond that which could be obtained in the therapeutic administration of the drug to man.

Conclusions.—The experiments here described afford no evidence of any protective influence being exerted by calcium chloride on the red cells of animals subjected to the action of a specific hæmolytic serum, though this salt serves to inhibit the lysis of the same cells by the same serum in test-tube experiments. Conclusions as to the therapeutic value of this and similar salts based on *in vitro* experiments must therefore be held to be invalid.

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Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OBSTETRICS AND GYNÆCOLOGY.

Exhibition of Cases and Specimens.—Sarcoma of Cervix and of Broad Ligament.—Cancer of Cervix.—Hysterectomy for Ante-partum Hæmorrhage.

A MEETING of this section was held on Dec. 3rd, 1914, Dr. W. S. A. GRIFFITH, the President, being in the chair.

Mr. CLIFFORD WHITE showed (1) an Ovarian Tumour which had been infected with tubercle, and (2) a case of Interstitial Tuberculous Salpingitis, in which tubercle bacilli were found in a small intra-mural abscess.

Dr. H. MACNAUGHTON-JONES demonstrated a Myomatous Uterus containing large numbers of intra-mural and submucous growths. The tumour was removed from a patient aged 47, and it weighed 1 lb. 1 oz. The nuclei varied in size from that of a small egg to a pea. There were three larger intra-uterine growths, two in the fundal cavity and a cervical polypus. Altogether, in this comparatively small sized tumour there were from 30 to 40 growths, subserous, in the cavity and in the wall. The uterine surface was studded over with them, and its wall was a mass of nuclei. It was noteworthy that the patient sought advice rather for other symptoms than pelvic ones. Only for the past year had she suffered from menorrhagia.

Dr. TREVOR B. DAVIES recorded two cases—(1) Sarcoma of the Cervix Uteri, and (2) Sarcoma of the Broad Ligament. The first patient, a single woman aged 29, was under the care of Mr. T. G. Stevens. There had been vaginal bleeding for three weeks. The menstrual periods were quite regular every 28 days, lasting from four to seven days. Examination per vaginam revealed a soft, smooth, rounded, bleeding tumour growing from the anterior lip of the cervix and filling the upper part of the vagina. The uterine body was normal in size and position. A hysterectomy was performed, the vagina being divided well below the growth. The pathological report stated that the tumour was roughly spherical and covered by a smooth necrotic surface, and in the recent state it measured 2 inches in diameter. Microscopically the appearances were those of a spindle-celled sarcoma. The stroma was scanty and the blood-vessels had very thin walls. The second patient was aged 51, married, and had had two children; menopause $1\frac{1}{2}$ years ago. Complaint: Pain in the right side of the lower abdomen running through to the back. In March, 1910, Mr. D. Drew removed an inflamed appendix. Examination showed the appendix scar to be tender and the right kidney freely mobile. Per vaginam: To the right of the cervix lay a hard, fixed mass the size of a large walnut, which bulged down into the vaginal roof. The uterus was normal in size and position and quite separate from the mass. At operation a hard swelling was found between the layers of the right broad ligament. It was shelled out and the broad ligament closed. In less than three weeks another fixed mass was felt in the same position. The tumour was about the size of a Tangerine orange, with a small mass the size of a large cherry projecting from its upper part. The tumour was pale and fairly firm; its surface somewhat nodular. In section the surface was pale; there were no hæmorrhages and no vessels were seen. Microscopically, the growth was a typical spindle-celled sarcoma composed of large spindle-cells arranged in bundles without any fibrous stroma, but with numerous thin-walled blood-vessels.

Dr. C. HUBERT ROBERTS showed a specimen of Pyometra and Cancer of the Cervix removed from a patient, aged 62, who had had seven children and two abortions; menopause 17 years ago. History of severe hæmorrhage three months before admission, and gushes of putrid fluid accompanied by severe colicky pains. The cervix revealed no ulceration nor new growth; uterine body enlarged, soft, and mobile. During the hysterectomy the vagina ruptured and foul material escaped into the pelvis. The lower part of the abdominal wound became infected, but the patient subsequently did well. The specimen showed a tubular solid growth of the whole of the cervix, which extended from the portio vaginalis to the os internum, and was densely hard. The cavity of the uterus was distended with purulent débris. The growth was a squamous-celled epithelioma.

Dr. CUTHBERT LOCKYER showed a case of Double Ureter which simulated a parovarian cyst of the right broad ligament. The specimen was obtained from a patient aged 63, in whom Dr. Amand Routh had noticed an enlarged and tender right kidney for two years previously. Pyonephrosis had been suspected. There was coli bacilluria, for which many injections of autogenous vaccine had been given without improvement. A hard, tender, solid lump was to be felt in the left posterior quadrant of the pelvis. In March, 1914, the patient began to lose blood from the uterus. As the menopause occurred 20 years previously, this latter symptom raised the question of malignancy starting in the body of the uterus. At the operation the hard body to the left of the uterus proved to be an isolated calcareous myoma adherent to the rectum and to the back of the left broad ligament; its shape suggested that it originally had a pedunculated attachment to the uterus. Above this independent growth, but quite separate and distinct, lay a solid tumour of the ovary, which proved to be malignant. The uterus and tumours were removed. The right broad ligament contained a cystic swelling of the size of an orange, which proved to be a dilated ureter twisted upon itself. This hydro-ureter was removed; the corresponding kidney was left *in situ*. The contents of the ureter were found after operation to be two calculi (blocking the lower twisted portion) and foul stagnant urine. Six weeks later a perinephric abscess was opened, since when the kidney had given no trouble. The cause of the uterine hæmorrhage was two myomatous polypi and endometrial hyperplasia. The uterus was not malignant.

Dr. HERBERT SPENCER described a case of Extensive Cancer of the Cervix with Pyosalpinx, well seven years after Wertheim's hysterectomy. The patient was aged 28. She had been examined by an obstetric physician, who advised her to go into a cancer ward as no operation could be done. The cervix was occupied by a large ulcerated growth as big as a small apple, which distended the vagina. The uterus was fixed by thickening in the left broad ligament and the left sacro-uterine ligament; the thickening was not nodular. Operation was performed at University College Hospital on Feb. 16th, 1907. The cervical growth was first curetted and cauterised, and several protruding masses were cut off with scissors. A solution of formalin (10 per cent.) was then applied. The operation was rendered difficult owing to the presence of bilateral pus tubes, which were adherent to the pelvis and rectum. The separation of the left ureter was also difficult. No glands were removed. A small abdominal drain was used. Urine escaped by the abdominal drainage-tube for a few days, and afterwards by the vagina. The patient recovered and left for Canada, where a vesical fistula was found and closed by Dr. Marlow, of Toronto. Dr. Spencer examined the patient every year for four years after operation and found no recurrence. In a letter dated March 24th, 1914, the patient reported herself as in the best of health. Dr. Spencer did not think Wertheim's operation was as good as vaginal hysterectomy with the cautery for early cases of squamous carcinoma of the portio; but for extensive growths and for adeno-carcinoma it was much better.

Mr. T. G. STEVENS described two cases of Hysterectomy for Ante-partum Hæmorrhage. The first was one of central placenta prævia in a patient, aged 37, 28 weeks advanced in her twelfth pregnancy. She was admitted to Queen Charlotte's Hospital at 1 A.M., having had a severe blood loss the evening before. The os uteri admitted two fingers and the whole lower uterine segment was covered by placenta as far as the finger could reach. A de Ribes' bag was introduced above the placenta, considerable hæmorrhage occurring during the procedure. Subcutaneous saline and morphia ¼ gr. were given owing to signs of collapse. Seven hours later the bag was expelled, the uterus was in a state of tonic contraction, and the cervix had closed up after allowing the bag to pass. No further hæmorrhage occurred. At this point Mr. Stevens saw the patient, and after debating the question as to the best method of delivering her, so as to avoid further blood loss, came to the conclusion that hysterectomy without opening the uterus offered the best solution. As the child was already dead, this operation was performed under morphia-atropine open ether anæsthesia, with infiltration of the abdominal wall by urea-quinine hydrochloride. Four pints of saline were infused subcutaneously. The operation proved to be a very easy one, and was practically shockless. The patient made an uninterrupted recovery. The second case was one of external and concealed accidental hæmorrhage in a patient aged 33, about 30 weeks advanced in her ninth pregnancy. She was admitted to Queen Charlotte's Hospital at 4 A.M. with the history of a big hæmorrhage at 10 P.M. the previous night. There was no hæmorrhage on admission, the pulse was 112–120, the patient looked very anæmic, and no placenta could be felt in the lower uterine segment. The patient was kept quiet in bed, and 12 hours after admission bleeding recommenced. An attempt to introduce a de Ribes' bag failed owing to the rigidly closed internal os. Pituitary extract, ½ c.c., and a little later morphia, ¼ gr., and 4 pints of saline were given subcutaneously, after which the external bleeding ceased. The patient, however, had a pulse of 150, and an examination of the uterus resulted in a provisional diagnosis of concealed hæmorrhage. Seeing that the child was dead, the internal os closed, and the patient in a very serious condition, Mr. Stevens decided that hysterectomy without opening the uterus offered the best chance of saving the patient's life. This was done under morphia-atropine open ether anæsthesia, with novocaine infiltration of the abdominal wall. Again the operation was very easy, and proved to be shockless, the pulse falling from 150 to 134 at the end of the operation. The patient made a good recovery. The reason for the choice of hysterectomy rather than Cæsarean section in these two desperate cases was the impossibility of any guarantee that the latter operation could be done without further considerable blood loss. Both patients had lost so much that a further loss of a pint would almost certainly have proved fatal. Further, at the time that Mr. Stevens saw the patients there was no possibility of delivery *per vias naturales* without a considerable loss. The actual amount of blood lost during the operation in each case did not amount to three ounces, and under the method of anæsthesia chosen the operation was shockless.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF SURGERY.

Exhibition of Specimens.—Intestinal Stasis.

A MEETING of this section was held on Dec. 11th, 1914, Sir JOHN LENTAIGNE being in the chair.

Mr. D. KENNEDY exhibited a portion of Resected Intestine showing Congenital Absence of Cæcum and Appendix, with Atrophied Ascending Colon removed from a girl aged 20. Four years ago she had a subcostal abscess on the right side, which seemed to be shut off from the abdominal cavity. The opinion formed was that it was a localised tuberculous abscess, and on opening it she made a good recovery. Two years afterwards she developed a fæcal fistula, which was operated on about three weeks ago. The abdomen was opened away from the fistula and a resection done, followed by lateral anastomosis. The portion of the large intestine anastomosed was about the middle of the transverse colon. The opinion of the pathologist who examined the specimen was that it was a congenital malformation, and that the atrophied ascending colon was the result of inflammatory trouble, probably of tuberculous origin. Some rearrangement of the muscle fibres practically proved the condition to be congenital.—Sir JOHN LENTAIGNE thought the origin of the trouble had been inflammatory in character, as many such cases were reported. He suggested that it had probably originated in or about the appendix. One of the reasons why he did not think this case was congenital was the fact that the girl had been well for 16 years. He thought that if she had suffered from a congenital derangement to the extent shown in the specimen involving such a tight stricture she would have showed symptoms earlier.—Dr. W. M. CROFTON regretted that it was not known whether the abscess in the first instance was due to tubercle or other micro-organisms. He suggested that the patient might have been saved a very severe operation if at the time the cause of the original abscess had been ascertained, and she was inoculated against it.—Mr. KENNEDY, in reply, said he did not look upon the atrophied ascending colon as congenital. He only attributed the cæcum and absence of appendix to congenital defect. As to the suggestion of saving the girl from operation, he thought it was beyond his power to render this abnormal intestine normal by any dose of vaccine. The ileo-cæcal valve was also abnormally narrow and would not permit a pencil to pass.

Mr. A. J. MCA. BLAYNEY showed a number of small Stones removed from inside the capsule of the prostate. There was a history of pain and frequency of micturition, and blood was said to have passed. An attempt at cystoscopy had been made in America. On a cystoscopic examination being made a tumour could be seen. The patient stated that urine occasionally came through the rectum. Per rectum a mass of the shape of the prostate could be felt, somewhat like a stone. The history, which extended back over ten years, was against malignancy. A diagnosis of prostatic calculi was made and perineal operation was done, when the stones were removed from the prostatic urethra.—Sir JOHN LENTAIGNE said the case was of importance on account of the occasional difficulty in diagnosis between malignant disease and this condition.—Mr. C. A. BALL said he had a somewhat similar specimen given him some years ago, but the number of calculi and their size were larger; and the diagnosis was made by rectal examination as crepitus could be detected.

Mr. BLAYNEY related his experiences of an operation recommended by Patterson for the relief of Intestinal Stasis. This operation consists of the removal of the cæcum, ascending and part of the transverse colon. The cases in which the operation was performed had as a rule suffered from marked ptosis of those parts of the intestine. The

operation had been done 21 times, with three deaths. In those who survived there had been a very marked improvement.—Mr. HENRY STOKES discussed the question of sacrificing or saving the great omentum. He thought Mr. Blayney was to be complimented on the low mortality-rate in these cases.—Dr. E. M. MAXWELL said she thought that the subject would become more important as time went on and methods became more exact. She suggested that the primary focus of many things would be discovered, such as inflammations of the eye. She referred to one of the cases mentioned in the paper. A patient, aged 38, met with an accident to his eye; the day following she extracted a piece of iron, and he underwent a normal convalescence, but at the end of a year he returned with acute iritis of the right eye. The patient informed her that during that year he was receiving treatment for constipation and dyspepsia, and about this time Mr. Blayney resected a portion of the colon, and within five days the visual power was recovered, and within two months of the operation vision was as good as it had been before.—Dr. CROFTON said the operation was a very severe one, and obviously, even in the most skilled hands, was attended by a very high mortality. The cases that had recovered were undoubtedly much improved and taught important lessons. Lane had shown the importance of the intestine, especially the large one, as a source of infection, but if it were possible to get the gastro-intestinal tract working without these operations it would be desirable to do so.—Sir JOHN LENTAIGNE said if the value of this procedure was to be understood and the best means planned for treating these cases the causation of the trouble ought to be known. The ideas generally held about it were very vague. He thought a perfect elucidation had been given by Professor Combe, of Lausanne, who had written two books on the subject, laying down in the plainest possible way, from his point of view, the pathology and treatment of these conditions. According to Combe the essence of the trouble in all these cases was the absorption of poisons from the large intestine produced by the decomposition of nitrogenous portions of food. This bacterial decomposition of food occurred in every one, but in the normal individual there were safeguards by which it was checked, and it was only when these barriers broke down that ill health ensued. There were many other conditions which were produced by absorption of these poisons, and all of them at some time or other were amenable to medical treatment. Great improvement could be brought about by diet, but nevertheless many cases came to the surgeon sometimes owing to an acute attack and sometimes because they objected to restriction in diet or were too poor to be able to get suitable dieting or to face the long and tedious, and more or less uncertain, medical treatment, and therefore had to be treated by a surgeon quickly. It was therefore necessary that the best treatment should be ascertained. What the surgeon saw when he opened the abdomen was probably the result of a very slow process which had gone on for years. As to the operation, Sir John Lentaigne considered that the best plan where the surgeon must interfere was to get a free emptying of the bowel, and so relieve the stasis. He was entirely in agreemept with Lane as to complete removal of the colon, but it was a very dangerous operation, and unless the technique was perfect the patient was very subject to sepsis. Mr. Blayney's operation, although it removed the worst part of the sink in which the putrefaction was going on, left sufficient of the large intestine to cause further trouble. He looked upon Mr. Blayney's patients as likely to be improved but not cured.—Mr. BLAYNEY, in reply, largely agreed with the remarks of Sir John Lentaigne as to the cause of the condition. The operation suggested by him was intended only for cases that could not be treated medicinally, and its object was to restore as far as possible the normal condition.

ULSTER MEDICAL SOCIETY.—At a meeting of this society, held on Jan. 7th in the Medical Institute, Belfast (Dr. J. S. Morrow, the President, in the chair), Dr. J. L. Rentoul read a paper on Diagnosis in Phthisis, Dr. G. A. Hicks read Notes of a Case of Acute Intestinal Obstruction Caused by a Dermoid Cyst of the Ovary, and Dr. A. Gardner Robb opened a discussion on the Present Outbreak of Scarlet Fever in Belfast.—Interesting discussions followed the reading of these communications.

Reviews and Notices of Books.

On Pharmacotherapy and Preventive Inoculation applied to Pneumonia in the African Native, with a Discourse on the Logical Methods which ought to be Employed in the Evaluation of Therapeutic Agents.

By Sir ALMROTH E. WRIGHT, M.D.Dub., F.R.S. London: Constable and Co. 1914. Pp. 124. Price 4*s.* 6*d.* net.

THE lengthy title of this little book somewhat recalls the titles of the pamphlets which were at one time so much favoured by learned men, and the contents of its first part correspond to some extent with such a comparison, being largely logical and polemical in character. The main thesis of this first part is the question of the value of æthylhydrocuprein hydrochlorate in the treatment of pneumonia, and certain experiments are set forth which were directed towards ascertaining the action of this substance on pneumococci in the presence of serum. Unfortunately, the results obtained in human patients are disappointing, and the drug has some tendency to affect the optic nerve and cause blindness; it is in Wright's phraseology "optico-neurotropic." The rest of the first part of the book is devoted to a discussion of the methods by which we arrive at truth in scientific medical investigation, and these are, according to the author, two—viz., the experiental and the statistical. The latter is praised and practised by Professor Karl Pearson, who has thereby arrived at conclusions unfavourable to the value of the method of estimating the opsonic index of the serum devised by Wright. This may perhaps explain to some extent the latter's apparent preference for the so-called experiental method, which is a process of induction by the individual observer, based on his own experience, the value of the conclusions reached depending on the character of the observer and on his carrying out proper methods of research with due control experiments. This is a little reminiscent of Aristotle's method of defining the virtues, each of which occupies a middle point between two vices, and this middle point is fixed "by reason and by the judgment of the practical man." It would seem that the practical man of one country—say, Germany—may differ from that of another—for instance, one of our own countrymen—as to the exact point where vice ends and virtue begins; and however immaterial this may be in the moral field it is inconvenient in science. "Authority" will always have weight, but decision by authority hardly constitutes a valid scientific method. At all events, the seeker for knowledge will be faced by the difficulty of determining who are the competent, and therefore authoritative, persons whose conclusions he can accept.

The second part of the book is devoted to the question of the use of vaccines in the prophylaxis and treatment of pneumonia, the subjects of observation being the native labourers in a South African mine. It seems that such natives are more susceptible to pneumococcal infection than are Europeans; that a considerable dose of vaccine—1000 millions or so—may have some prophylactic efficacy, but only for a brief period of time; and that while the administration of a vaccine during the incubative period of pneumonia may abort the attack, the use of this method in cases of the developed disease is of uncertain value. Many other interesting points are incidentally recorded,

which we have not space to mention in a brief review. An appendix dealing with recent observations by others on the use of "optochin" (æthylhydrocuprein hydrochlorate) in pneumonia suggests that the danger of this remedy is less than was previously supposed, and that it is worthy of further trial on human patients.

The book is interesting and stimulating, as is most of its author's work.

Abwehrfermente.

Von EMIL ABDERHALDEN, Direktor der Physiologischen Instituts der Universität zu Halle a.S. Vierte, bedeutend erweiterte Auflage, mit 55 Textfiguren und vier Tafeln. Berlin: Julius Springer. 1914. Pp. 404. Price 12 marks.

IT was only on May 16th last that we had occasion to review the third enlarged edition of this work on the "Defensive Ferments of the Animal Organism," as translated by Dr. J. O. Gavronsky and Mr. W. F. Lanchester. The first (1912) and second (1913) editions in the German text were reviewed in THE LANCET of Jan. 4th, 1913, and Nov. 8th, 1913. Now we have a fourth enlarged edition. These editions appear with almost bewildering activity. The third German edition is not before us, but we have compared the fourth German edition with the English translation of the third German edition. Substantially the text of the latest edition up to a certain point is much the same as the third. There are here and there omissions and addenda in the general text. In this edition the list of contents has been split up, so as to show more fully in detail the subjects dealt with, while in the text itself indications are given which enable the reader to see at a glance the subject under discussion, and the text itself is adapted in paragraph form accordingly. The author is far from thinking that he has attained finality in his researches; in fact, according to his statement in the preface, it is still impossible to give a final decision as to the practical value for the pathologists of the methods which he has employed.

Of the three additional plates the first one is coloured and shows the plumage of the bullfinch, which it appears has a testicle on one side and an ovary on the other. These animals "have on one side male and on the other female plumage, each being delineated accurately, and without any transition, along the middle line of the body." This subject is introduced as "a particularly fine example of the specific action of gland secretions upon cells of specific structure." The second plate is meant to show the method and result of the "ninhydrin" test and the biuret reaction, while the third shows the results obtained when a coloured substrate is acted on by the proteolytic ferments substrate present in serum.

In addition to what appears in the English edition, an account is given of the following questions and problems, some of which are new and which on account of their special importance are treated separately (pp. 139–204)—e.g., the employment of dialysation for determining blood-free substrates in blood serum, the proof of dysharmonious substances by means of biological methods, "specificity" of the defensive ferments, the origin of the proteolytic ferments of blood plasma, the "inactivating" of dysharmonious ferments and their "reactivating," adsorption of dysharmonic ferments by the substrate, the application of the dialysis and optical methods in clinical problems and a criticism of the same, the carrying out of physiological and clinical experiments, and other cognate subjects. The chapter on methods has been added to and has been made more practical by the introduction of illustrations to show some of the more complex technical processes employed. The literature is brought approximately up to date, but there is no index. As if to bring the very latest results to the attention of the reader there is an addendum of a few pages.

As, according to the author, it will take many years of investigation to work out the problems herein presented, even this striking contribution to a weighty yet obscure problem can be regarded only as an instalment. We wish the author a successful continuance after the war is over in his persevering endeavours to illuminate a subject of great practical importance. An article in THE LANCET this week by Dr. Gavronsky, giving the results of clinical investigations based on Abderhalden's methods, will be read with interest, and will certainly tend to raise confidence in Abderhalden's work.

Cunningham's Manual of Practical Anatomy.

Revised and edited by ARTHUR ROBINSON, Professor of Anatomy in the University of Edinburgh. Sixth edition. Vol. II., Thorax, Head and Neck. With 267 illustrations in the text and 11 plates. London, Edinburgh, and Glasgow: Henry Frowde and Hodder and Stoughton. 1914. Pp. 636. Price 10*s.* 6*d.* net.

NEW editions of the "Manual" come fast, and this fact is in itself some guarantee that the subject matter is up to date. In this sixth edition the alterations are more considerable than a mere revision of the text, and we would especially call attention to the increased prominence given to radiographs of normal living bodies. The section dealing with the brain has been considerably altered, and many new and helpful illustrations have been added to this portion of the book. It is needless to say that the nomenclature of the Basle agreement—here called, with doubtful justification, "international" terminology—is retained in this, its real British godparent. We notice the incorporation of most that is new in the teaching of anatomy since the appearance of the last issue, and we congratulate the editor upon the perpetual virility of this widely used dissecting manual.

National Health Insurance through Approved Societies. Being a Practical Legal Treatise Incorporating the Operative Orders and Regulations.

By W. ADDINGTON WILLIS, LL.B. Lond., of the Inner Temple, Barrister-at-law. London: Published for the University of London Press by Hodder and Stoughton. 1914. Pp. xxx. + 494. Price 10*s.* 6*d.* net.

THE title-page summarises the objects for which this handy-sized volume has been compiled, while the name of its author is a guarantee of lawyer-like qualities. Principally concerned, as it is, with the Insurance Act in relation to Approved Societies, it is likely to be found useful also by many who, in the exercise of their professions or officially, have to do with the practical carrying out of national insurance; and medical men, who as a rule have no time to gather information by hunting through statutes and regulations, will find Mr. Willis's methodical arrangements and lucid summaries of considerable assistance. Of course,

everyone who uses a work of this kind has to become more or less familiar with its characteristics before he can extract full benefit. To take an example from the work under review, the references in the index are to paragraphs, not to pages. A reader who gets accustomed to this method in a text-book will find that it facilitates research, as he is brought straight to his subject without having to look for it through a possibly long and closely printed page. Naturally, in a work devoted to the guidance of approved societies, only a limited portion of the contents touches upon the Insurance Act as affecting the medical man, a member of the panel, who apart from attending the patients on his lists has no interest in insurance. A very large number of the medical profession, however, are concerned in administrative and organising duties, in performing which it is an advantage to have convenient and rapid access to the law upon a particular topic, especially when that law is largely contained in a rather confusing succession of orders and regulations. This appears to be the first edition that Mr. Willis has brought out; it is not issued so early that it need require immediate revision, but no doubt we shall see other editions follow in due course.

Handbook of Obstetrics for Students and Junior Practitioners in India.

By KEDARNATH DAS, M.D., Teacher of Midwifery, Campbell Medical School, Obstetrician and Gynæcologist, Campbell Hospital, Calcutta. With 376 illustrations, Calcutta: Butterworth and Co. 1914. Pp. 612. Price 14*s.* net.

STUDENTS in India are to be congratulated on having at their disposal such an excellent text-book as this. The book is complete, accurate, and clearly written, and is evidently the work of a good teacher and practitioner. In his recommendation to conduct a labour with as few vaginal examinations as possible the author is very sound, and his suggestion of estimating the progress of the head, after it has descended too deeply into the pelvis to be felt from above, by pressure through the perineum, is worth bearing in mind by the student. We would suggest the great value of abdominal pressure in cases in which the birth of the body is delayed after the delivery of the head; it is free from the dangers which attend both traction on the head or the introduction of the finger into the axilla. The plan followed by Dr. Das, of leaving the breasts entirely alone when the mother is not to nurse her child, is a sound one, and it deserves to be more widely practised than it is at the present time.

The section on eclampsia is particularly good, and the author's statistics show very clearly how relatively frequent this disease is among natives of India. The observation that in Bengalese only 5·5 to 5·8 grammes of urea are excreted per diem, as against 23 to 32 grammes in Europeans, is a very interesting one. The treatment of eclampsia is fully discussed, and the uselessness of the routine transfusion of saline fluid and the advantages of a solution of sugar, if the molecular concentration of the blood is raised, are pointed out. At the same time it must be remembered that by most authorities the molecular concentration of the blood is held to be diminished and not increased. In his account of hydatidiform mole the author does not mention the valuable observations of Briggs on the fact that the relative increase in the size of the uterus may be absent, and that it may be even smaller than usual.

The influence of Whitridge Williams's teaching is evident throughout the book, and Dr. Das follows him in his neglect of the induction of premature labour as a means of treating cases of the medium degree of pelvic contraction, a view with which most obstetricians in this country would not agree. In our opinion and in the best practice this operation is successful, and although it is true that the immediate fœtal mortality is high, yet the death-rate during the first year of life is not much, if any, higher than that of children born at full term. The methods of the Dublin school are not quite correctly represented in describing the treatment of accidental hæmorrhage. According to Hastings Tweedy it is not necessary that "the ovum should be intact"—that is, the membranes unruptured—and he employs plugging the vagina successfully even after rupture of the membranes.

The book ends with a series of extremely valuable hints on obstetric surgery for the use of students. These are marked by sound common sense and a clear recognition of the points upon which in teaching emphasis should be laid. We repeat that this is a good book, and we congratulate the author on his success.

A Manual of Minor Surgery and Bandaging (Heath-Pollard) for the Use of House Surgeons, Dressers, and Junior Practitioners.

By H. MORRISTON DAVIES, M.D., M.C. Cantab., F.R.C.S. Eng., Senior Assistant Surgeon in charge of beds and out-patients, University College Hospital, &c. London: J. and A. Churchill. 1914. Pp. 467. Price 7*s.* 6*d.* net.

Heath's "Bandaging" was known to many generations of medical students in all parts of the world; the book before us is a reincarnation of that widely used work, and yet it retains enough of its original points to enable anyone who knew it before to identify it, even in its new form. The general plan has not been changed, but several alterations have been made. The chapter on poisons has been omitted, as the subject hardly comes within the scope of a surgical work, while the chapter on case-taking has been replaced by one in which the general principles of the methods of examining a patient are laid down. The chapter on anæsthetics has been revised by Dr. Dudley Buxton and Dr. Felix Rood, and the newer methods have been described. Some indication of the many changes made may be gathered from the fact that nearly a hundred new illustrations have been added. We are sure that this edition will meet with the welcome accorded to previous issues of the work.

The Probation System.

By CECIL LEESON, Social Study, Higher Diploma, Birmingham University; with an introduction by J. H. MUIRHEAD, LL.D., Professor of Mental and Moral Philosophy, Birmingham University. London: P. S. King and Son. 1914. Pp. 191. Price 3*s.* 6*d.* net.

AN interesting result of the establishment of universities in the more important centres of English industrial life has been to stimulate in a remarkable degree the scientific investigation of the various social problems connected with modern urban conditions. This has been shown in definite form by the organisation in several of the provincial schools of special departments of social study, to which sociological literature is already indebted for contributions considerable both in amount and quality. Mr. Cecil Leeson's monograph on the probation system is a creditable example of the work which is being done

under these influences. It deals with a reformatory method which has come very much into favour in this country and in America as a result of the general recognition that the old-fashioned panacea of imprisonment is usually ineffective, if not positively mischievous, as a means of correcting criminal tendencies, and that recourse should be had to so extreme and dangerous a remedy only when every other way has been tried and found inadequate. Under the probation system offenders, instead of being sent to gaol, are conditionally released under the friendly supervision of a skilled social worker, known as a probation officèr. The system has been widely applied in the United States since 1878, both to juvenile and to adult offenders, and it received full legislative sanction in England by the Probation of Offenders Act, 1907. Mr. Leeson gives a clear and concise account of the principles of the method, and discusses its merits and defects in an eminently temperate and reasonable spirit. It is satisfactory to note that he fully recognises the importance of skilled inquiry into the mental condition of persons whom it is proposed to put under probation. It is a method which is obviously useless in the case of mental defectives, and many of the failures which have exposed it to hostile criticism have been due to the error of applying it to weak-minded delinquents for whom life-long control is the only rational mode of treatment. Mr. Leeson's book is altogether a very creditable piece of work, and may be commended to the attention of readers who desire to learn something of one of the most promising developments in preventive criminology.

MISCELLANEOUS VOLUMES.

OUR Miscellaneous column this week fully lives up to its name, covering as it does popular philosophy, travel, war, and linguistics.

In the form of a dialogue, one of the speakers being a charming woman "once a swimming reptile," as she is informed, Mr. H. DE VERE STACPOOLE in *The New Optimism* (London: John Lane. 1914. Pp. 42. Price 3*s*. 6*d*. net), epitomises the story of evolution, with the object of showing that the world has a meaning and life an aim, that side by side with the building up of forms there is a building up of character and a "progression towards the benign." Whether or not we accept the conclusions which the book presents to us, "The New Optimism" is intellectually stimulating.

A Woman in China (London: T. Werner Laurie, Limited. Pp. 890. Price 15*s*.), by MARY GAUNT, a great traveller, is written in the bright, breezy, discursive style that characterised her book "Alone in West Africa." It gives a picture of China and things Chinese under the modern conditions of the new republic which will be of interest not only to those to whom far Cathay is quite unknown, but also to those whose previous conceptions are based on a personal experience of some decades ago. It contains little of any special medical interest, though in Chapter XIV. the amateur medical services of the devoted missionary (not a medical man) and his wife at Jehol, aided by a German girl who was a certificated midwife, are briefly depicted with a sympathetic touch. The book is elaborately illustrated by the author's own photographs, 130 in number, which greatly enhance its interest.

Chinese Self-Taught by the Natural Method, with Phonetic Pronunciation (*Thimm's System*), by JOHN DARROCH, Litt.D. (London: E. Marlborough and Co. 1914. Pp. 153. Price, wrapper, 4*s*.; cloth, 5*s*.), is designed to serve the double purpose of a text-book for students, officers, civil servants, missionaries, and such like, and a handbook for tourists, travellers, and other temporary visitors to China, with the exception, perhaps, of the southern ports and Hong-Kong, Canton, Amoy, and Foochow, where no spoken phrase from the book is likely to be understood. Each of these places has a totally different dialect from its neighbours, and this book professes to set out only the "Mandarin or official language," which, it is claimed, is spoken by seven-eighths of the population, with, of course, local variations. It is up to date, as we observe that the Red Cross Society is phonetically represented as "Hung shirr dz hway," and the Chinese ideograph for it seems to a western eye to look like a lamp-post shedding its beams, followed by a dumb-bell, a St. George's cross, an old open umbrella with a skewer through the handle, and a little gable-ended cottage. We notice that the doctor (army) is "ee-sung," but in another place he is called "bo siz," and he is probably a civilian, as he comes next to the fisherman and farmer; but then the physician is also "ee-sung," and the surgeon is "wi ko ee sung." The dentist is "yah ee-sung," and turning to the "human body" list we see that "ya chirr" are teeth. The mouth is "kou," and the ideograph is nothing but a simple square. The heart is "sin," and a servant is a "yung run," and there are other indications in the vocabulary suggesting that it might be possible for a man to teach himself some sort of Chinese, though we imagine his knowledge would not take him far.—Another book of the same series is *French Self-Taught by the Natural Method with Phonetic Pronunciation* (*Thimm's System*), by J. LAFITTE (London: E. Marlborough and Co. 1914. Pp. 148. Price, paper, 1*s*; cloth, 1*s*. 6*d*.), a second edition of which is now out. We have expressed our opinion in reviewing the first edition on the, in our opinion, invincible difficulties inherent in any "phonetic" attempts to convey accurately pronunciation by the eye; but at the present juncture, when all that is required by many is to make themselves intelligible, the book may prove of service, instruction by word of mouth being often impracticable.

The Nightside of Japan (London: T. Werner Laurie, Limited. 1914. Pp. 233. Price 7*s*. 6*d*. net), by T. FUJIMOTO, is a quaint description by a Japanese for Europeans of native life and customs in modern Japan. Theatres, hotels, railway travelling, public baths, the temples, the Geisha girls, the Yoshiwara, and various types of Japanese are graphically described. Noticeable features from a point more nearly concerning the medical man are the sections on bathing and massage. In Japan massage is quite an occupation for the blind. There is a piquant attractiveness in the quaint English of the author, and we think the publishers acted wisely in refraining from having the manuscript corrected by a literary man, who would probably have dissipated the peculiar atmosphere of the book.

Fighting in Flanders (London: William Heinemann. 1914. Pp. 231. Price 3*s*. 6*d*. net), by Mr. R. ALEXANDER POWELL, is a vivid and graphic narrative of what the author saw in the area of war from its beginning up to the fall of Antwerp. It is told with a racy humour, expanding in places into broad farce, such as one has become familiar with at the hands of the American journalist, then again contracting with all the tenseness of tragedy as the deeper tones are sounded. As one reads the narrative it becomes easy to understand the conversion of the author—an American, as he describes himself, who went to Belgium with an open mind, knowing the English, the French, the Belgians, and the Germans equally well, and having friends in and happy memories of each of the four nations—into a "pro-Belgian." The numerous photographs by Mr. Donald Thompson add greatly to the interest of the book.

JOURNALS AND MAGAZINES.

The Journal of Physiology. Edited by J. N. LANGLEY, Sc.D., F.R.S. Vol. XLIX., Nos. 1 and 2. Cambridge University Press. 1914. Price 7*s*.—The Influence of the Vagus on Pancreatic Secretion, by G. von Anrep. In 1888 Pawlow asserted the existence in the vagi of secretory fibres for the pancreas and later in the splanchnics, and fibres in the vagus which diminish or abolish secretion. With the discovery of secretin in 1902 some began to doubt the accuracy of Pawlow's observations, while the Popielski school held that all the phenomena are to be explained by a nervous mechanism. The author, in Pawlow's laboratory, has reinvestigated the subject in dogs anæsthetised with chloroform and ether, as morphia injuriously affects the vagus fibres. The spinal cord must be completely and quickly cut, and the bulb must not be crushed. Vagus stimulation yields no secretion when the spinal cord is undivided. Why this is so is not known. Tracheotomy was performed, the œsophagus tied in the neck, a cannula placed in the duct, and the vagi exposed as they run along the œsophagus, so that they could be stimulated either in the neck or in the chest. The

experiments confirm the statement that the vagi both in the neck and in their branches contain not only secretory but also inhibitory fibres to the pancreas. Secondary and inhibitory fibres are found equally in all branches of the vagus to the pancreas. The secretion of pancreatic juice excited by the administration of secretin can also be inhibited by stimulation of the vagus. Atropine in doses sufficient to paralyse the secretory fibres of the vagus does not paralyse the inhibitory ones.—The Relation of Length to Tension Development and Heat Production on Contraction in Muscle, by C. L. Evans and A. V. Hill. This communication is of interest to physiologists. It has reference to isometric contraction.—On the Ovarian Factor Concerned in the Recurrence of the Œstrous Cycle, by F. H. A. Marshall and J. G. Runciman. The authors have investigated the problem as to what part of the ovary is responsible, or mainly responsible, for the recurrence of the proœstrum and œstrus in the dog, in which the cycle is very regular, and in typical cases extends over about six months. The animals were operated on about three weeks before a new heat period was due. The ovaries were exposed; at least nine enlarged Graafian follicles were pricked. The animals rapidly recovered, and three weeks later manifested what seemed the normal phenomena of heat. The animals were killed a week later and the ovaries examined microscopically. The experiments show that the occurrence of "heat" in dogs does not depend upon the presence of mature (or nearly mature) Graafian follicles in the ovaries, nor upon corpora lutea, so that some other ovarian element or combination of elements is the cause. The ovarian interstitial cells are possibly concerned in the process, but cyclical changes in the condition of these cells have not so far been observed in the dog's ovaries. The view that the ripening of the Graafian follicles and the onset of menstruation or heat stand to one another in the relations of cause to effect must be abandoned.—Fatty Metabolism in the Liver. III., Fatty Acid Infiltration of the Liver during Pregnancy and Lactation, by R. Coope and V. H. Mottram. In rabbits dieted for a month a decided increase in the fat of the liver was found to occur at, or about, the time of parturition, so that this fatty infiltration of the liver is a physiological and not a pathological process.—The Afferent Fibres of the Abdominal Vagus in the Rabbit and Cat, by K. O. Neuman.—Some Results of Excision of the Adrenal Glands, by T. R. Elliott. The observations were made on the cat, an animal which invariably dies after excision of its glands. The author's purpose was to analyse the manner of this death, and especially to see whether the end comes with a general failure of the nerve and muscle machinery of the sympathetic nervous system, inasmuch as the medulla of the gland is so closely related with that system of nerves. After removal of both glands death usually takes place on the second day. Removal of one adrenal gland in a cat does not obviously affect the animal's health, nor does it when in addition the splanchnic nerves on the opposite side are cut. It causes usually some hypertrophy of the remaining adrenal and of accessory adrenals, more especially, if not almost entirely, of the cortical tissue. Subsequent removal of the remaining gland practically always causes death, but death does not occur so quickly as when the two glands are removed at one operation. In the moribund cat the blood pressure is low, and there is nearly complete paralysis of vasomotor and cardio-accelerator nerves (all other nerves reacting in an appropriately normal manner). The paralysis is due to a change in the unstriated muscle, since pituitary extract and barium chloride have little or no effect, while adrenalin still causes a rise of blood pressure and a quickening of the heart beat. The paralysis of the vasomotor nerves is not due to shock. The paralysis is due to the absence of adrenal secretion. Some evidence is given that the cortical adrenal cells influence sex characters.—The Relation between Successive Responses of the Ventricle to Electric Stimuli and Ventricular Fibrillation, by A. G. Levy. The general direction of the observations is to support the view suggested by Mines that a circulating rhythm underlies the conditions known as ventricular fibrillation.—The Respiratory Exchanges of the Heart in the Diabetic Animal, by E. H. Starling and C. Lovatt Evans. Many researches on diabetes have shown that the respiratory quotient (R.Q.) in intact diabetic animals is low compared with that of the normal animal, and similar results have been obtained on surviving excised organs. The author's observations were made on the heart-lung preparation of the dog. It was found that the average R.Q. for the normal dog's heart is 0·85. The heart uses 3·2 c.c. oxygen per gramme per hour when doing moderate work, and about 1·6 mg. of carbohydrate per gramme per hour when the animal is fed on a mixed diet. The lung tissue per gramme of heart uses not more than 0·5 mg. of sugar per hour as calculated from the gaseous exchanges. The R.Q. of the diabetic heart in pancreatic diabetes is about 0·71, due partly to the inability of diabetic tissue to utilise carbohydrate, though there are perhaps other factors. The average oxygen usage of the diabetic heart is 3·1 c.c. per gramme per hour, from which it is inferred that the energy requirement of the diabetic tissue is the same as that of the normal one.—The Estimation of Non-protein Nitrogen and Urea Nitrogen in Blood, by Charles G. L. Wolf. This communication is of interest to biological chemists, and hangs in connexion with the following communication. The Metabolism of the Salivary Gland: I., The Nitrogen Metabolism of the Resting Gland, by Charles G. L. Wolf and Joseph Barcroft. This, like the previous paper, will be specially interesting to biological chemists, and is an attempt to investigate the nitrogenous metabolism of the submaxillary gland by direct methods, a sharp distinction being drawn between (1) protein and (2) non-protein nitrogen.

Archives of the Roentgen Ray.—The December number opens with a valedictory note from the editor, Mr. W. Deane Butcher, who for reasons connected with his health finds it necessary "to abandon a task which for many years has been for him a labour of love." Every radiologist and probably many others will receive this announcement with the greatest regret coupled with the hope that Mr. Butcher may be spared for many years yet to watch the progress of the science he has done so much to foster and encourage. Only those who have had the privilege of coöperating with him have any idea of the immense amount of work he put into the *Archives*, and not the least important part was his regular attendance at congresses at home and abroad, where his kind and friendly disposition and his scientific enthusiasm made him one of the most respected and popular members present. This last number of the *Archives* to be issued under Mr. Butcher's direction well maintains the high standard set by him from the time he first took charge. The excellent series of articles on Diathermy is continued by Dr. E. P. Cumberbatch. This series, when completed, might well be published in book form, as the subject is one that is commanding increasing attention. Most medical journals have something to say about bullet wounds at the present time, and we have here a method of localising bullets, by Dr. F. Hernaman-Johnson, with a letter on the same subject by Mr. C. Thurstan Holland. Dr. Arthur F. Hertz contributes a paper on the X Ray Diagnosis of Gastro-Intestinal Conditions, with special reference to Appendicitis, in which he points out that in quite 50 per cent of cases the appendix can be seen if carefully looked for, and many important conditions accurately diagnosed. Dr. J. MacIntyre, of Glasgow, discusses the comparative value of X rays and radium in the treatment of malignant growths—a question that is rapidly coming to the front. With the very powerful apparatus now available and the use of screens to shut off the rays that were so prone to set up X ray dermatitis massive doses are now possible that were undreamt of a few years ago, with results that are eminently satisfactory.—In the present issue (January, 1915) of the same journal we have the first number to appear under the new editorship, which is now of a three-fold character. Dr. Robert Knox, radiologist to King's College Hospital, Dr. E. P. Cumberbatch, of the Electrical Department at St. Bartholomew's Hospital, and Dr. Sydney Russ, physicist to the Middlesex Hospital, have now taken over the charge of the *Archives*, a selection that augurs well for the future. We note with pleasure that the name of the late editor appears among the list of the collaborators. Some important experiments bearing on the question of X ray filtration and dosage are contributed by Dr. J. H. Sequeira. A paper dealing with bullet wounds, by Dr. A. J. Cleveland, describes a modification of the Mackenzie-Davidson method of localisation, while Mr. Gilbert S. Scott shows two plates illustrating some effects of the modern bullet. The notes and abstracts, as well as the other special features of this valuable journal, are very complete and useful.

THE FLOODS AND PUBLIC HEALTH.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

THE floods affecting, not only the Thames valley, but many other parts of the country will tax the resourcefulness of our sanitary authorities to the utmost. The dampness caused by the water that invades dwelling houses is, of course, unwholesome; but the specific contamination due to the filth floating in the water may be more dangerous. In spite of great sanitary progress, no system of drainage has been devised that can protect dwellings from sewage if the floods reach a sufficiently high level. The water in the sewers, of course, can only carry the sewage away when the outfall is at a lower level than the sewers, save where the conditions warrant elaborate pumping or exhaustion schemes. On the water rising at the outfall it penetrates the sewers, and the first thing that happens is the forcing back of a large volume of sewer air. If the sewers are not well ventilated at frequent intervals the sewer air pressed backwards by the rising flood will break the seal of the domestic drains and invade the dwelling-rooms of the houses. The actual toxicity of sewer air is not now in question—anyhow, no one wants it in the house. If the water rises higher still the sewage itself overflows from the street and yard gullies or sewer mouths. If there are closets in the basement of the houses the sewage will come out of them into the house. If the closets in the house are above the level reached by the flood there will of course be no overflow from the closet; but the lower portions of the soil pipe connecting with the sewer in the street may not be strong enough to resist the unusual pressure. The drain pipe may then burst, and then the sewage may be distributed alike upon the streets and inside the houses.

The Floods and the Sewage Disposal Works.

Even where the flood is not so extensive as to produce an extreme effect it is very likely to invade the sewage disposal works, for these must be at a very low level, and this means frequently proximity to a water course. This is not a matter which need unduly frighten us. It has been calculated that the sewage from a total population of one and a quarter million people, living in the Thames valley, ultimately reaches the Thames above the intake of the London water-supply. Yet few, if any, cities enjoy so pure and safe a water-supply as London. The sewage in the Thames valley is carefully treated and purified before it is allowed to flow into the Thames, while the London water-supply is kept safe by the efficient methods of storage and filtration employed.

The chief concern in London, of course, is the protection of the water-supply from the floods. In 1894, after severe floods, there was a considerable amount of typhoid fever in London. But since that date the water-supply, especially the storage of the water, has been greatly improved. The water reservoirs are now of such vast dimensions that the water may remain standing for a very long time before it is drawn off for use. This prolonged settling process, apart from filtering, greatly facilitates purification. There is no reason to fear in London that the flood waters will be mixed with the drinking water. The storage is so enormous that the intake of Thames water can be stopped for a while. London is drinking Thames water now which was collected before the floods. It is to be hoped the stored supply is sufficient to meet all wants till the floods are over, but the rainfall has been a very exceptional one and the floods have prevailed for some time. When the great reservoir was built at Staines complaints were made that its embankments were so lofty that they blocked out the view and spoilt the scenery of the surrounding country. Now that the floods are carrying away the contents of privies, and distributing broadcast the filth from neighbouring sewage works, we may be thankful that these embankments are too lofty for the floods to flow over them and contaminate the store of drinking water for London.

When a flood invades sewage works it swamps the filter-beds and scatters the untreated sewage in all directions. After the floods have subsided the neighbouring fields are found to be covered with a thick and odoriferous layer of sewage sludge. The whole system of sewage disposal has become inoperative, and the only hope is that the immense volume of water produced by the flood will suffice to purify the foul matter it carries away. In the swollen river, in streets that have become small rivers, there may be a current, and a sufficiently rapid current, to wash away decomposing matter. But inside a house, confined within the four walls of a basement or a cellar, there is no current. The water stagnates and deposits filth on the walls and floors as it gradually subsides.

The Contamination of Dwellings by Floods.

In many flooded districts, especially among rural populations, there are no sewers. Even in comparatively large provincial places it will often be found that the water-carriage system is only applied to the more favoured parts of the town. There are still provincial towns of some size where, as well as water-closets, there are cesspools, privy middens, or pails. The cesspools are emptied by night-soil men once a year or oftener, while the pails are generally removed once a week. When a flood occurs in such a place the soil, of course, mixes with the water and floats away from the pails or privies, is carried all over the inundated district, into the houses, and into the wells. Thus, water and dwellings are contaminated. All these risks are now with us over a large area, and in some districts are aggravated by the large number of camps for the training of the Territorials and other troops. We know how severe the floods have been at Salisbury. It is to be hoped that the latrines for the soldiers encamped in the neighbourhood are constructed according to the most approved principles; but, even so, no system has been invented that will prevent a flood lifting out the contents of a latrine and scattering it about. A reasonable step would be to remove the camp to a district out of reach of the flood—a very practical object-lesson in military training, for when the enemy discovers the right range their shells come more rapidly than a flood. Then there is other dangerous matter besides the contents of sewers or cesspits. Apart from waste products coming from yards where skins are tanned, tripe prepared, offal dealt with, and many other unpleasant and unwholesome industries carried on, there is the vast accumulation of household refuse, the contents of our dust-bins. That, again, is scattered in all directions and brought inside our houses by the invading floods.

Remedial Measures.

From all this there results the obvious necessity of applying very prompt and vigorous measures for cleansing and disinfecting the portions of the houses that have been submerged. This, indeed, must be extended to all parts of the buildings where the damp has extended, even though it may be some distance above the highest water level. To give time for this to be properly done, it is fortunate if the waters subside gradually, as all the dwellings cannot be treated at one and the same moment. When the floods are beginning to go down, disinfectants, notably chlorinated lime, in suitable quantities should be thrown into the water that remains in the basements or cellars. There it should mix with the sludge or mud deposited by the water on the walls and on the floor. The mud should be piled up in some open space and sprinkled over with a disinfectant. The walls, floor, and ceiling of flooded rooms or cellars will require very careful washing and scrubbing, and finally should be thoroughly whitewashed. A flood provides an excellent opportunity for a general clearing. Rubbish and lumber that may have accumulated during years in cellars or under staircases and basements is rarely worth saving, and can now be very advantageously destroyed, burnt if possible. Bedding, if it has been soaked in suspect water, should not be spared unless it be of such very good quality as to warrant incurring the expense of thorough disinfection. Such cleaning work requires strict supervision. It is questionable whether all the sanitary authorities concerned have at their disposal numerous staffs to ensure that efficient measures will be taken. This is an occasion when the county medical officers of health may have to exercise their right of supervision over the smaller district sanitary authorities. The cleansing of flooded houses must be well done everywhere, and not strictly enforced in one locality and neglected in another.

THE LANCET.

LONDON: SATURDAY, JANUARY 16, 1915.

The Coördinated Study of Gunshot Fractures.

THE conditions of the present war are quite unprecedented. Not only is the number of our men actually fighting at one time greater than it has ever been before, but there is a correspondingly large proportion of the medical men of the country engaged in attending upon the wounded. Again, the fields of battle are many of them so close that an effort can be made to send the wounded back to this country quickly. Yet even the nearest battle-field is so far off that such transport, involving, as it does, the placing of the wounded on and removing them from ships, is fraught with both great difficulty and danger. In order to utilise as far as possible the services of medical practitioners at home there have been formed large general military hospitals in the British Isles, and to these the wounded are being sent either directly or after a longer or shorter period of treatment in one of the base hospitals in France. The scheme of organisation has been described in our columns, and is familiar to all our readers, who will see that a wounded man may have to go to a field hospital, a stationary hospital, a base hospital, a general hospital, and subsidiary hospital in the course of his journey to recovery, or may skip any link in the chain in accordance with circumstances personal to himself or arising out of the exigencies of warfare.

The system is probably the best that can be devised in all the circumstances; it is the outcome of much thought and practical experience and is working well on the whole, and splendidly in some directions. But in order that it may produce the best results it is desirable that a very close understanding should exist between those responsible for treatment of the patient in his various stages, so that a right course of therapeutics, if started, should be maintained, and any emendations decided upon should have the best chance of success. These remarks apply with especial force to the treatment of severe gunshot fractures. With regard to these, the march of surgery has been in advance of all practical military experience. When last we were engaged in war on a large scale near home, the rule applied that all severe gunshot injuries of the limbs with open fractures of the bones must be amputated at once, for then the results of primary amputation were far superior to those of secondary amputation. It is now the ambition of modern surgery to save the majority of these limbs, and this ambition is happily fulfilled in many cases. But unfortunately in the attempts at conservatism lives are lost and limbs are saved in a useless condition through the endeavour to secure more perfect results than those of immediate amputation. Things were much simpler in the old days. A shattered limb was amputated on the field or at the base, and if the patient recovered there was little or nothing further to be done for him on his return home. During the Napoleonic wars our countryside was dotted with our luckless defenders, who, one-armed or one-legged, were too often compelled to look to charity for their subsistence. We shall not see this sad and discreditable spectacle again; but now, with the problems of treatment and the machinery for their solution far more complex, new difficulties arise. It is the responsibility of modern surgery to meet these difficulties thoroughly and scientifically. Take, for example, the case of a man with an open comminuted fracture of the femur, the injury received in a muddy trench. First he has to be dressed on the field or in the field ambulance; then he has to be transferred to a place of safety, the leg for the time being immobilised. At last—and the amount of delay must depend upon the general conditions of the fighting in the area—he reaches the base hospital, where his case can for the first time be fully treated. The wounds, fairly certain to be septic, demand immediate attention. They are opened up and a number of fragments of bone are found lying in their depths. Ought these to be removed or to be conserved as far as possible? No general rule of treatment has so far been formulated. This question is answered very differently by different surgeons, although the conditions must in the majority of instances be similar. In the less severe type of case sepsis may not be so virulent, nor the bone so much splintered. But here the following doubts arise. Is it wise to leave the bones alone? Is it better to allow the soft parts to remain lax and the bone ends overlapping? Or should extension be applied from the first? If the fracture is clearly exposed in the wound some surgeons may prefer to fix the fragments, by nails, screws, wires, or plates. Indeed, to every one of these questions there are different answers, and accordingly different practices. Some surgeons remove all loose bone fragments, others leave them in place, others only remove those fragments which are devoid of attachments, and others again, it is said, take out fragments, wash and replace them. Some adopt continuous extension of the limb from the outset. Some do this in a straight position whilst others maintain the semi-flexion of the joints.

We do not here advocate one method of treatment rather than another, and in any particular case he would be a rash person who should attempt to dogmatise; but we would point out that of all these various practices some must be right and others wrong when applied over a long series of cases having many qualities in common. It ought not to be merely a question of personal opinion or of text-book rule, for we may say that no opinion and no text-book can speak with authority under the peculiar circumstances of the present war. It is clear that we must be prepared to regard ourselves, as a nation, as only at the beginning of the war, and it ought to be possible at this early stage to collect a body of evidence about all these points which should in the main serve as a guide for practice in the immediate future. Take two only of the debated questions. First, ought fragments of bone to be removed from open septic comminuted fractures? We think the usual answer is in the affirmative, but patients arrive in this country with great gaps in the continuity of the large bones, which will have to be made good by difficult and tedious bone grafting at a later date, if indeed anything can be done, when very great loss has occurred. If, on the other hand, the bone fragments might safely have been left and it could be shown by a series of cases that they afterwards unite to reconstitute the broken shaft, then all workers would be in a position to benefit by this fact. Secondly, ought the fragments to be fixed by plates and screws in a septic wound? If this can be done with impunity then there is a great gain in time, saving of pain, and facility of transport. But this bold and unorthodox plating may produce disastrous results, under which the patient arrives at the general hospital with his leg firm and straight, but subsequently the whole length of the plated bone necroses and leaves a huge gap. What is to be said in such circumstances, and who is to say it? One surgeon takes out the bone fragments and another is left to deal with the flail-like limb. One surgeon screws on plates and another has to make the best of the resulting destruction of bone. At the end of the war no doubt we shall be supplied with masses of statistics justifying different procedures, and some may think that this recorded experience should be awaited, saying that the present is not the time to write but to act. But the end of the war will be too late for thousands of maimed soldiers. Surely it is desirable and possible to institute some system of coöperative effort, first in the registration of facts, and then in the carrying out of principles, so that surgeons at the field hospitals, base hospitals, and general hospitals shall be able to unite in carrying out a well-approved system. Any practice in an early stage which gives bad final results could be noted and checked, and the discovery of any new treatment or appliance should quickly be placed at the disposal of all.

Our Belgian Colleagues.

WE publish this week a circular which has gone out in many directions to medical practitioners explaining the objects of the Belgian Doctors' and Pharmacists' Relief Fund, which is being raised to organise assistance, in money and in kind, for Belgian medical men and pharmacists, both those remaining in Belgium and those who are refugees in this country. The information in the circular has all been published in different issues of the *British Medical Journal* and THE LANCET, but the time has now arrived when a consecutive story may be told with advantage, for it is difficult for anyone who is not actually concerned in the details of a movement to follow its progress from week to week. We want our readers to understand clearly both what the promoters of the Fund have before them as objects, and in what directions they have so far been able to work, for upon such understanding further support will follow.

It may be pointed out that the aims of the Fund are twofold, and that the uses to which it is proposed to put any money collected are also twofold. The terrible position of the country of Belgium—submitting, save in one tiny strip of territory, to the occupation of the Germans—has dictated both the objects of the Fund and the methods of its distribution. First, with regard to the objects, Belgian doctors and pharmacists who are remaining in their own country—and these comprise, of course, the great majority of both professions—are in the midst of a population in the most dire need of their ministrations, but to a great extent they are unable to play their professional parts. They must look on while the people die, especially the children, to whom the Belgians look to replace in due time the gaps in their depleted numbers. The devastation of war has left both medical men and pharmacists largely without money, often without houses, and, as we learn from authoritative sources, quite without any of the material with which to render actual therapeutic assistance. These pharmacists and doctors are alike in recognising that in most instances their unfortunate countrymen cannot be expected to pay fees, but even were fees obtainable the tragic situation would be the same, for medical assistance is usually of little worth in the absence of drugs, dressings, and instruments. Thus the earliest object of the Fund was to try to establish communication with the Belgian doctors and pharmacists in Belgium so that they might be supplied with drugs and instruments. How far this will be possible with any regularity or in any bulk cannot be said, but the Executive Committee of the Fund, having obtained the invaluable sympathy of the American Ambassador in London with the endeavour to create a channel of supply, is now acting through the International Commission for Relief in Belgium, and hopes soon to be able to transmit medical material to Belgian doctors and pharmacists upon some regular

plan. The second object of the Fund is the assistance of Belgian doctors and pharmacists who are refugees in this country. A large number of Belgian doctors and pharmacists are with us whose needs are urgent. Some had little or no opportunity to bring any money with them, many can obtain nothing to supplement what they brought with them, and the duration of the war will be such that any supply of money brought over by them from Belgium will be exhausted in most instances before they can return to their country to resume professional work. The Fund, out of subscriptions received and acknowledged in the medical journals, has given assistance already to certain of these refugees. A small subcommittee has been empowered to make grants of money in suitable cases, and for this purpose takes the advice of the President of the Belgian Society of Medicine in London, who personally communicates to the honorary officers of the Fund the details of the cases where assistance is required. Thus in two directions already the comparatively small sum of money as yet raised is being utilised, and in both directions it is clear that more money will be required. We have reason to believe that owing to active coöperation in the United States the difficulties attendant upon sending parcels of drugs into Belgium will be minimised, when at once large stocks of medical material should be obtained and shipped. Moreover, the medical refugees in this country are likely, as time goes on, to require more and more succour. There are, therefore, immediate uses for any money subscribed to the Fund, and real need for many more subscriptions.

But there will be a further employment for such money later. Not only is it certain that more money will be wanted in the two directions where action is already possible, but it must be remembered that it has always been the ideal of the Fund to obtain money for the assistance of Belgian doctors and pharmacists when that gallant country is free from invaders, and is making efforts, with the world-wide assistance which she will obtain, to recover from the horrible plight to which German ambition has reduced her. All nations save three will rush to the aid of Belgium when the time of her rehabilitation comes, and two of her three enemies will, it is our confident belief, be compelled to subscribe to the same object. It is the hope of the committee of the Belgian Doctors' and Pharmacists' Relief Fund to gather together a substantial sum of money, and to coöperate with similar bodies throughout the rest of the civilised world in an international movement. This is the second use to which subscriptions will be put.

LITERARY INTELLIGENCE.—Messrs. Cassell and Co., Limited, announce for immediate publication the fifth edition of Luff and Candy's "Manual of Chemistry," revised and enlarged by Mr. Candy. Much of the additional matter relates to the theory of ionisation and some of its consequences. The section on volumetric analysis has now been extended to include the volumetric aqueous solutions of the new British Pharmacopœia.

Annotations.

"Ne quid nimis."

THE REGULATION OF THE HEART BEAT.

THE "heart-lung preparation" of Knowlton and Starling has now obtained a permanent place in physiological research. By means of it the mechanical performance of the mammalian heart can be accurately studied, and clearer ideas of its capacity for work and its power of adapting its work to the mechanical conditions imposed upon it obtained. The latest experiments of Patterson, Piper, and Starling show that it is difficult to imagine a more perfectly regulated machine than the heart.[1] Leaving aside such regulatory factors as the influence of possible chemical factors and nerves in the intact body, it is plain that the heart-lung preparation is free from all nervous control, so that the question arises whether we can refer to one or a few elementary qualities of the muscular tissue the whole behaviour of the heart "under stress or light work, when efficient or failing, when stimulated or depressed by drug or nerve." This is the interesting problem which has occupied the attention of the above-named observers for the last two years. Their results are most interesting, as well as of great practical importance. The behaviour of the heart must be the sum of the behaviour of its constituent muscle fibres. It is interesting to compare its inner activity with that of skeletal muscle. In a skeletal muscle it is found that the longer the muscle the greater is the amount of chemical energy, heat production, and tension set up when the muscle passes from the resting to the active condition—results which also obtain in cardiac muscle, making allowance for the different arrangement of the heart fibres, and the fact that the heart contracts rapidly and rhythmically, so that both the tension and length of its fibres alter continuously during diastole from one beat to the next. E. H. Weber originally stated that a skeletal muscle during contraction changes into a body with other elastic properties, or, as recently expressed by A. V. Hill, "excitation causes a setting up of a new state in muscle. At and after this moment the muscle is simply a new elastic body of changed elastic properties and possessing potential energy which can be turned into work if we desire, but which otherwise will degenerate in a few hundredths of a second into heat." Neither the length nor the tension of the heart fibres can be measured directly, but on the length of the fibres depends the capacity or volume of the heart, while the tension of the muscle fibres determines the intracardiac pressure. Professor Starling and his colleagues therefore adopted methods to determine these factors during rest and activity of the heart. It is found that the "law of the heart" is the same as that of skeletal muscle. The mechanical energy set free on passage from the resting to the contracted state depends on the area of "chemically active surfaces"—i.e., on the length of the muscle fibres. They claim that this simple formula "serves to 'explain' the whole behaviour of the isolated mammalian heart—its movements, powers of adaptation to varying demands made upon it, its

[1] Journal of Physiology, vol. xlviii., 1914. THE LANCET, Nov. 7th, 1914, p. 1100.

behaviour in fatigue and under the influence of its nerves or chemical agencies, such as acid ions or adrenalin." A study of the heart shows that it is able to put out a constant amount of blood with very wide variations in the arterial pressure provided only that the venous inflow is constant. Indeed, if the inflow into the right ventricle is maintained constant, the output from the left ventricle is unaltered by the resistance presented by altered arterial blood pressure, by changed rate of beat. On the other hand, within wide limits the heart is able to increase its output in direct proportion to the inflow. A study of the respiratory exchanges of the heart shows that the metabolism of the heart increases or diminishes in proportion to the mechanical demands made upon it. The adaptation is complete, the chemical sources of energy are drawn upon in proportion to the heart's requirements. The heart, like any other living tissue, requires opportunity for recuperation. This it obtains normally by putting in its period of rest immediately after each period of activity. If a high degree of work for long periods is demanded of it it shows fatigue, which may go on to failure. As the three latest observers point out, this occurs when the dilatation, which is the mechanical result of unchanging inflow and failing outflow and is the automatic means of regulating outflow to inflow, proceeds to such an extent that the tension of the muscle fibres becomes increasingly inadequate in producing rise of intracardiac pressure. The mechanical disadvantage at which in the dilated heart the skein of muscle fibres must act finally smashes up the system and the circulation comes to an end.

EPIDEMIC OUTBREAKS IN RUSSIAN FACTORIES.

IN March and April of 1914 severe mysterious epidemics broke out in many Russian factories, most of which are in Petrograd. The evidence now forthcoming as to the origin of these epidemics is analysed in *Norsk Magazin for Laegevidenskaben* for October by Professor Harbitz, who, though he does not claim to have solved all the difficulties, argues that the main causes were chronic ill-health and hysterical phenomena, which spread from patient to patient. The first outbreak occurred in a large Russian-American rubber factory, which turns out millions of goloshes. The workers sit by hundreds at long tables in a large room, and their task consists of fitting the separate pieces together. The adhesive material used contains gutta-percha and resins dissolved in benzine, the vapour of which constantly fills the room. It is a curious fact that though the factory has been in activity for 54 years symptoms of poisoning had not hitherto occurred, at any rate in the form of an epidemic. On the morning of March 25th one woman after another suddenly developed headache, giddiness, lassitude, collapse, and loss of consciousness. Nausea, vomiting, and convulsions were also observed. About 50 women were thus affected, a panic ensued, and a rush was made from the factory. Most of the patients rapidly recovered, but a few were confined to hospital for several days with headache and giddiness. On March 26th 102 similar cases occurred in another room of the same factory. The floor was strewn with writhing, unconscious women, and some men who rushed in to help also collapsed. An inspection of the room by medical men and the staff of the factory revealed nothing amiss. Next day the first room was opened again, but the women had scarcely begun work before a new outbreak occurred, 60 new cases being observed. All work was now stopped throughout the factory, but on March 28th, when the employees arrived to receive their weekly wages, several new cases occurred. On March 30th, when the factory was re-opened, there were several new cases, but the symptoms were slighter. The employees now refused to work till several precautions had been taken. The whole factory was accordingly closed, and about 17,000 persons were out of work. The employees insisted that they had been poisoned by the adhesive material, the benzine of which had recently been changed. But this, according to the employers, was the purest benzine from Baku. They also remarked that the symptoms were practically confined to the women, although several men worked with them; and that, though the same solution was used in every room, the epidemics broke out now only in this room, now only in that. Medical men who investigated these outbreaks traced them to benzine poisoning, with which the symptoms tallied. They suggested that the cumulative effect of this drug had culminated in several persons at about the same time, and had affected women in particular on account of their weak constitution and physiological characteristics. Many neurologists, however, followed Professor Bechterew's lead in regarding these outbreaks as hysterical. Admitting that chronic poisoning might be at the bottom of these outbreaks, they maintained that their epidemic nature was due to auto-suggestion and psychic infection. The upholders of the benzine hypothesis pointed to the occurrence of similar outbreaks in rubber factories in Riga. But their arguments were shaken when several similar outbreaks occurred in factories in which benzine was not used. Three tobacco factories were successively involved, and nicotine poisoning was consequently suspected till similar outbreaks occurred in factories devoted to such widely different commodities as chocolate, clothing, machinery, wool, and jute. To what extent these outbreaks were the expression of an agitation for better sanitary conditions it is impossible to say, but Professor Harbitz considers that they were mainly due to faulty sanitation and to chronic ill-health, to which in some cases benzine may have contributed. The epidemic character of the outbreaks was, in his opinion, largely determined by psychic factors.

FLOODS AND POLLUTION.

THE remarkable figures given by Lord Desborough at a meeting of the Thames Conservancy Board in regard to the extent of rainfall over the Thames basin for nine weeks ended on Jan. 5th last must mean an increased strain on the purifying machinery of the Metropolitan Water Board. In another column we publish a communication dealing generally with the increased demand upon the capacity of our sewerage system and its relation to public health. In the Thames basin the fall of rain was equal, we are told, to 3015 million tons, or 682,507 million gallons of water over the 3812 square miles of the area. It may be presumed that part, at any rate, of this flood water would be impounded in the storage reservoirs in order to keep up the domestic supply, and that in spite of the mass of impurities which it must sweep from agricultural land a good

amount of this water must reach the reservoirs. The well-known purifying process of sedimentation by storage would obviously occupy a much longer time for completion in order to bring the water to a sufficiently pure state for drinking purposes. It is to be hoped, however, that the increased vigilance which would seem imperative at a time when a great flow of storm water occurs, with its heavy charge of impurities drawn from the land, will be exercised by our authorities. It will be interesting in any case to watch the future official reports upon the purity of the supply based upon the examination of samples synchronising with the flooding period. The precautions alluded to apply equally, of course, to other parts of the country which derive their water-supplies from rivers, for the excessive rainfall was general.

MEDICAL RECIPROCITY WITH BELGIUM.

BY an Order in Council, published in the *London Gazette* of Jan. 8th, it is enacted that, "whereas the Kingdom of Belgium affords, in his Majesty's opinion, to the registered medical practitioners of the United Kingdom such privileges of practising in Belgium as to his Majesty seems just, during the continuance of the present war, now, therefore, his Majesty doth hereby, by and with the advice of his Privy Council, order, direct, and declare that the Second Part of the Medical Act, 1886, shall be deemed, from the date of this Order, to apply to the Kingdom of Belgium, until it is otherwise ordered." Part II. of the Medical Act of 1886 deals with the admission to the Medical Register of colonial and foreign practitioners holding medical diplomas recognised by the General Medical Council "as furnishing a sufficient guarantee of the possession of the requisite knowledge and skill for the efficient practice of medicine, surgery, and midwifery." The new and welcome Order in Council authorises the General Medical Council to recognise for the time being medical diplomas of approved Belgian universities, and thus to admit Belgian practitioners to the Foreign Section of the Register, with freedom to practise in the United Kingdom. The Executive Committee of the General Medical Council will take the necessary steps to give early effect to this enactment.

"BAKING" CHRONIC ULCERS OF THE LEG.

IN the *New York Medical Journal* of Dec. 19th last Dr. H. D. Sonnenschein has reported good results from the treatment of chronic ulcers of the leg by "baking" the part in an electric dry-air oven at a temperature of 250° to 300° F. for 20 to 30 minutes three times a week. Sluggish granulations become healthy and active, healing is astonishingly rapid, and pain disappears after two or three treatments. The following are examples. A man, aged 63 years, had an ulcer of the size of the palm of the hand on the tibial surface of the left leg. The urine contained sugar. In diabetic and nephritic cases the patients can endure only low degrees of heat and are very susceptible to burns. Therefore the oven is heated to a lower temperature than usual. In this case 120° to 130° was adopted, and the ulcer completely healed. In another case a barman, aged 42 years, had an ulcer on the plantar surface of the foot following an injury received 14 years before. It was 1½ inches square and three-eighths of an inch deep and the edges were very hard. There was no history of syphilis and the Wassermann reaction was negative. The ulcer had not been treated for 12 years, and the patient sought advice in consequence of the pain, which was unbearable. The ulcer was "baked" three times a weak, cleansed with peroxide of hydrogen, and dressed with scarlet red ointment. Complete healing took place and the pain disappeared. In a third case a man, aged 45 years, had an ulcer on the small toe of the left foot which extended for about an inch along the border of the foot. Both feet were cyanotic and painful. In spite of the poor nutrition of the part the ulcer healed and the cyanosis and pain diminished under "baking" and the application of scarlet red ointment. Dr. Sonnenschein considers that the method acts by induction of hyperæmia, which has been found very successful in the treatment of refractory chronic ulcers. Among the means which have been adopted to induce hyperæmia are the application of Esmarch's bandage and the old but efficacious plan of immersing the part in a pail of very hot water. We may point out that, as stated in an annotation in THE LANCET of June 14th, 1913 (p. 1684), heat applied in another manner—a douche of hot air—has been used with success by French surgeons in the treatment of torpid ulcers. In 1911 M. Vignat recommended it, and at a meeting of the Société Médicale des Hôpitaux of Paris on May 16th, 1911, M. Mosny and M. Pruvost reported a case of sloughing bedsore in a patient in a bad condition after an attack of phlebitis and bronchopneumonia which rapidly healed under this treatment.

THE CORPUS STRIATUM.

SOME of the obscurity which has hitherto enshrouded our knowledge of the large mass of basal grey matter which is known as the corpus striatum appears at length to be dissolving away. In spite of the fact that electrical stimulation of this region of the brain fails to elicit any definite motor response, yet evidence of lenticular degeneration can be clinically revealed by a syndrome of symptoms now fairly clearly recognisable, in which motor disturbances, spasm and tremor, form prominent features. Dr. S. A. Kinnier Wilson, who has brought this "lenticular syndrome" into prominence,[1] now records in *Brain* (1914, xxxvi., 427) the results of certain experimental lesions placed in this basal mass and discusses the significance of these observations. Electrical stimulation of the lenticular nucleus failed to induce any motor effect, thus confirming the results of most other observers. Electrolytic destruction, however, of definite portions of this nucleus was carried out on monkeys, which, after a period of three weeks, were destroyed, and the degenerated areas carefully examined. The results showed, in the first place, that the corpus striatum is independent of the cerebral cortex; it is also not connected directly with the spinal cord. Connexions are more intimate, however, with the optic thalamus and regio subthalamica, including the red nucleus, and this fibre system links especially with the globus pallidus portion of the corpus striatum. It is clear that this body is an

[1] THE LANCET, April 27th, 1912, p. 1115.

autonomous centre. Its function is exercised independently of the cerebral cortex, but is motor in type, and is exercised in an efferent or caudal direction. Developmentally, it appears that in the lower forms of vertebrate life the corpus striatum exercises a more dominant motor control than it can exert in the higher forms, although such control cannot attain the complexity and range afforded by the elaboration at a later phase of the cortical brain or neopallium. The final function of the corpus striatum appears to be something of a "steadying" influence upon pyramidal innervation exerted through the strio-rubro-spinal tract. How this effect is brought about is suggested to be by virtue of what Sherrington terms the "final common path." The idea conveyed by this definition is that an end neuron effect, of motor type for instance, depends for its manner of action upon the particular stimulus applied to its arborisations at its proximal end, which stimulus, however, may be of varying nature, and may also reach the end neuron along different converging channels. The type of final stimulus is itself determined by the coördinate relationships between the possible sources. Amongst such channels are recognised cortical and cerebellar influences, for example; in addition, the corpus striatum is claimed to be capable of exerting an effect. Clinically it is suggested that absence of striate control induces tremor, well exemplified in cases of progressive lenticular degeneration. One question remains to be answered: Why is it that in the experiments performed tremor did not result? The reason suggested is that possibly the wide variation in functional capacity of the lenticular nucleus in different species, a variation worthy, apparently, of particular comment, forbids the anticipation that results gained in experiments upon the ape need necessarily be identically reproduced in man.

TRAUMATIC RUPTURE OF THE HEALTHY AORTA.

IN the *Journal of the American Medical Association* of Nov. 28th, 1914, Dr. G. G. Copeland has reported a case in which death was due to a very unusual cause—traumatic rupture of a healthy aorta. A labourer, aged about 40 years, was struck by a large mass of falling earth, which gave him a glancing blow on the back and knocked him down. A few seconds later he was picked up dead. Dr. Copeland examined the body a few hours after death. There was a large scalp wound on the forehead down to the bone, which was not fractured. On the body were several small bruises, especially over the right loin, and the pelvis seemed to be fractured. The face and mouth were blanched, suggesting internal hæmorrhage. Nearly 10 ounces of blood were found in the peritoneal cavity. The liver was badly torn and the right kidney was torn, but the capsule was intact. The pelvis was fractured near the symphysis pubis, but the bladder was intact. The peritoneal surface of the intestines and many of the blood-vessels supplying them were torn. With these lesions the abdominal cavity should have been full of blood. The whole condition was explained when the thorax was opened. The left pleural cavity contained 38 ounces of fluid blood. Opening into this cavity were the gaping ends of the descending aorta, which was cut across as cleanly as if a knife had been used. The ends were separated an inch at the widest part and half an inch at the narrowest. The rupture was at right angles to the length of the vessel, which was quite healthy. The intima was smooth and showed no plaques or dilatations. The heart was firmly contracted and empty and was perfectly normal. The distance from the aortic valves to the tear was 3½ inches. The right lung was adherent to the chest wall throughout. It was solid and non-crepitant and its condition suggested the stage of red hepatisation of pneumonia. The lower lobe of the left lung contained much coagulated blood. Dr. Copeland is unable to explain how the rupture was produced. There were no external signs of the cause of death. He suggests that the rupture of the aorta may have been due to a force of the nature of contrecoup.

THE PROGNOSTIC VALUE OF SCHMIDT'S TEST IN SUMMER DIARRHŒA.

Dr. J. Sidney Pearson, of Perth, Western Australia, commenting on the value of the Schmidt test on the fæces in the *Medical Journal of Australia* (1914, vol. i., p. 491), considers it of considerable value from a prognostic point of view. His data for such a conclusion are based upon 2000 cases, though from the text it is not clear whether all were tested or whether such tests were limited to the 400 cases to which he more particularly refers. The test depends upon determining the presence or absence of altered or unaltered bile in the fæces, and is carried out in this way. A teaspoonful of fæcal material is placed in a wide test-tube, a little sterile water added, and well stirred with a glass rod. The tube is then filled to four or six times the volume with a saturated solution of corrosive sublimate, the mixture well shaken, and allowed to stand for 12 hours. By this time fæces if normal become coloured bright red. If unchanged bile pigments are present the colour becomes green. If no colour change occurs bile is absent, and the reaction is termed negative. In summer diarrhœa it is found to be generally negative; with improvement a positive reaction occurs, a green or red colour appearing. The point especially emphasised is that no single case ended fatally in which the Schmidt test continued positive or after treatment became positive. Further, Dr. Pearson never managed to cure a case in which the Schmidt test continued negative. In a final series of 200 tabulated hospital cases the results were:—

Discharged with Schmidt's test	Negative	77
	Positive...	87
	Changing to positive ...	9
Died with Schmidt's test... ...	Negative	27
		200

Some pathological data recorded by the writer show that changes in the gall-bladder, absence of bile in the intestines, are found in these zymotic enteritis cases. He also notes that the bright green stools are not due to unchanged bile, but to a chromogenic organism, frequently the bacillus pyocyaneus.

POISONING BY TETRACHLORIDE OF ETHANE.

IN our issue of Dec. 26th, 1914, we reported at some length the proceedings at an inquest upon a man who died at Hendon from the poisonous effects of the vapour of tetrachlorethane contained in a "dope" for varnishing aeroplanes. Since then two further deaths from the same cause have

formed the subjects of coroners' inquiries. The first case was that of a young woman employed at an aeroplane factory at Rochester, who died from toxic jaundice with uræmic symptoms; the inquest was held on Jan. 5th. The second case was that of a girl, aged 19, an employee at Vickers's works at Crayford, and at the inquest on Jan. 8th the medical evidence showed that death occurred with symptoms of intense jaundice, the result of toxic degeneration of the liver. In each case the jury brought in a verdict of death from poisoning by tetrachlorethane vapour used in the aeroplane "dope." We understand that the Home Office are taking energetic measures to prevent the occurrence of any further accidents from this cause; but in view of the fact that tetrachlorethane and similar substances are being used in various parts of the country, not only at aircraft works but in other industries—such as the manufacture of various preparations of cellulose—we think it advisable to draw public attention to the dangers involved in the employment of this very toxic chemical.

A METHOD OF STAINING PARASITIC AMŒBÆ.

THE difficulty of satisfactorily staining the amœbæ of dysentery and allied forms is in practice considerable, so that any method which can be relied on to give good results is of interest. The following directions are given in a recent communication by Mr. Alexander Marshall,[1] of the Wellcome Tropical Research Laboratories at Khartoum. Smears are made from dysenteric stools and transferred rapidly, while still wet, to Schaudinn's fluid. They are then washed in alcohol of different strengths and finally in distilled water, after which they are stained in Delafield's hæmatoxylin for 20 minutes. They are next washed in tap water and stained with carbol-fuchsin, as for tubercle bacilli; after which they are again washed with water and finally differentiated with Sprengel's solution of picric acid, consisting of equal parts of absolute alcohol and of saturated watery solution of the acid. This is applied for three to five minutes, during which time the reagent is changed three or four times. The stained films are then dehydrated in absolute alcohol, cleared in xylol, and mounted in Canada balsam. Thus treated, the nuclei of the parasites are stained a purplish black, while the cytoplasm is a pale translucent yellow colour. Red blood corpuscles are also stained yellow. The method is described as easy, rapid, and certain in its results, and is certainly well worth trial by those called upon to make this investigation.

[1] Reprint from the Laboratory Journal, September, 1914.

NATIONAL ASSOCIATION FOR THE PREVENTION OF INFANT MORTALITY AND FOR THE WELFARE OF INFANCY.—This association, whose chairman is Sir Thomas Barlow, has arranged for an advanced course of lectures on infant care for voluntary health workers, mothers, nurses, &c., to be held at the Royal Society of Medicine, 1, Wimpole-street, W., on Mondays, at 5.30 P.M., from Feb. 1st, 1915, onwards. In addition to the lectures arrangements can be made for the attendance of every student at four infant consultations at selected infant welfare centres. For tickets and all further particulars, application should be made to Miss Halford, Secretary, National Association for the Prevention of Infant Mortality, 4, Tavistock-square, London, W.C.

THE CLAIMS OF BRITISH SPAS.

(*Concluded from Dec. 5th, 1914, p. 1323.*)

VIII.—WOODHALL SPA.

DEVELOPMENTS of real importance from a balneological point of view commenced at Woodhall Spa, Lincolnshire, in 1887, since which time the place has advanced considerably. The spa was brought prominently before the notice of the medical profession in 1909, when a large party of medical men from London and the provinces visited the place in response to an invitation of the directors of the Woodhall Spa Company to come and see for themselves the facilities for bath treatment offered at an increasingly popular health-seeking station. It is only three hours' journey from London, and is situated amongst most attractive surroundings of a rich moorland country with charming woodland scenes in which pine and birch trees chiefly figure. The place has a restful air, and is well suited to the temperament of those persons who are likely to derive benefit from the therapeutic waters of the bromo-iodine wells.

The principal chemical feature of the Woodhall Spa water is the presence of both the bromide and iodide of potassium in distinctly important quantity, the former occurring to the extent of 3·51 grains per gallon and the latter to 0·53 grain per gallon. The total saline matters present amount to 1562·48 grains per gallon, of which 1406 grains are due to common salt according to Professor T. E. Thorpe's analysis.

Taken internally in small quantities this water is said to produce a sedative and tonic effect upon gastric and intestinal mucous membranes which is useful in some gastric and dyspeptic conditions. In larger quantities the gastric activity is increased and chronic catarrhal conditions are benefited, while the functions of the pancreas and liver are stimulated and altogether a healthier state of nutrition ensues. This alterative action of the waters is particularly observed in cases of rheumatism, gout, arthritis, enlarged glands, and inflammatory exudations. In full doses the water is mildly but distinctly purgative, while effecting a marked diuretic action. These waters, unlike so many natural waters which contain merely indifferent mineral constituents, show a composition upon which the explanation of their therapeutic action may reasonably be based. The presence of bromide and iodide of potassium, for example, may be associated with definite therapeutic results, especially when they are accompanied by chloride of sodium. In this matter the waters of Woodhall Spa are unique, as no other mineral water in this country is known to contain such important quantities of the elements iodine and bromine.

The external application of the water is provided for in many ways, a course of hot mineral baths being a routine of great assistance in cases of rheumatism and neuritis. As an adjunct a hot spray is employed. Local applications are given in the form of sprays and douches to joints, vapour inhalations and douches to the internal cavities of the nose and throat. Compresses for application to painful joints have their basis in a specially concentrated mineral water, which is further used in the form of douche or spray when a marked local reaction is desirable.

The programme of social arrangements at Woodhall Spa is attractive but unobtrusive.

IX.—PEEBLES.

Peebles, described as "the leading Scottish health resort," has qualities of environment which, coupled with the facilities for a hydropathic course, deserve to be more widely known. It is beautifully situated on the River Tweed, amidst a delightful panorama of hill, valley, and wood. It is a peaceful, restful place where "rest cures" do genuinely occur. All the accessories which form part and parcel of modern treatment by baths are to be found here on lines comparable with the installations of a spa abroad. A particular feature is made of the mud pack or "fango" for the relief of such painful affections as gout, rheumatism, and sciatica. The Nauheim and Bourbon-Lancy methods of treatment of heart affections are available. The historic St. Ronan's wells not far from the "hydro" entitle Peebles to the description of a watering place, the waters being brought to the hotel for special bathing purposes. They are saline and sulphated.

X., XI., XII.—THREE WELSH SPAS.

There is a wealth of natural mineral waters in Wales, and three spas have commanded medical support.

Llandrindod is among the best known inland watering places, and the town has developed rapidly in recent years as a well-recognised balneological station. Here are common salt and sulphur springs, the latter resembling the waters of Harrogate in containing sulphuretted hydrogen gas. The saline waters are employed chiefly in catarrhal dyspepsia and hepatic disorders, while the sulphur waters serve as an adjunct in the treatment of gouty and rheumatic states.

At Llangammarch, about 13 miles south of Llandrindod, is a spring containing common salt, calcium chloride, and barium chloride. Therapeutically the water is said to be similar in action to that of Kreuznach, and chemically it is, we believe, the only example of a natural mineral water containing so much barium salt. It is used in the treatment of chronic heart disorders, functional distress, in Graves's disease, and in rheumatic conditions. The action of barium chloride has been compared with that of digitalis. The water is employed both internally and externally. Its composition seems well adapted for preparing a Nauheim bath. The country round is very beautiful, the Eppynt Mountains sheltering the village from the north-east. Treatment is provided for at the principal hotels, which have recently been greatly developed on lines consistent with the requirements of a large clientèle of patients and visitors.

Llanwrtyd, some five miles south of Llangammarch, is known chiefly on account of its strong sulphur wells, and the cases treated here are commonly skin disorders, rheumatism, and gout. There is excellent accommodation, and the bathing installations provide for most lines of treatment.

THE BRINE BATHS AT STAFFORD.

Dr. F. Milnes Blumer, medical officer of health of Stafford, has pointed out to us that at Stafford there is a brine of a potency equal to that at Droitwich which is utilised in the complete suite of baths opened by the corporation in 1892. Chemical analysis of the brine shows a similar composition in regard to saline strength. Of course, there are brine wells in other parts of the country, and all are more or less saturated solutions of common salt. In this series of articles we were dealing more particularly with those places generally recognised as health resorts or spas. We are glad to note, however, in bringing this series of articles to a close, that at Stafford the brine wells are used for remedial purposes.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN November last the county borough of Plymouth was extended to include Devonport, thus reducing the number of towns with populations exceeding 50,000 persons at the last Census to 96. In these 96 towns 9434 births and 6736 deaths were registered during the week ended Saturday, Jan. 9th. The annual rate of mortality in these towns, which had been 16·1, 14·0, and 21·3 per 1000 in the three preceding weeks, fell in the week under notice to 19·4 per 1000 of their aggregate population, estimated at 18,134,239 persons in the middle of 1914. During the 13 weeks of last quarter the mean annual death-rate in these towns averaged 14·9, against a corresponding rate of 15·3 per 1000 in London. The annual death-rate last week ranged from 7·3 in Acton, 10·0 in Croydon, 11·6 in Barnsley, 11·7 in Newport (Mon.), and 12·0 in Ilford, to 26·9 in Northampton, 27·1 in Hastings, 28·0 in York, 28·2 in Preston, and 47·9 in Gillingham.

The 6736 deaths from all causes were 659 fewer than the number in the previous week, and included 487 which were referred to the principal epidemic diseases, against 411 and 575 in the two preceding weeks. Of these 487 deaths, 183 resulted from measles, 93 from whooping-cough, 84 from infantile diarrhœal diseases, 77 from diphtheria, 35 from scarlet fever, and 15 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1·4, against 1·7 per 1000 in the previous week. The deaths attributed to measles, which had been 210, 175, and 269 in the three preceding weeks, fell to 183 last week, and caused the highest annual death-rates of 1·7 in Bolton and in Gateshead, 2·1 in St. Helens, 2·3 in Wigan and in Newcastle-on-Tyne, 2·5 in Merthyr Tydfil, 2·7 in Grimsby, 4·4 in Plymouth, and 4·8 in Preston. The deaths referred to whooping-cough, which had steadily increased from 35 to 80 in the seven preceding weeks, further rose to 93 last week; the highest death-rates from this cause were 1·1 in Newcastle-on-Tyne, 1·3 in Rhondda, 1·4 in Bristol and in Warrington, 1·6 in Willesden, 1·7 in Tynemouth, and 1·9 in Gillingham. The fatal cases of diarrhœa and enteritis (among infants under 2 years), which had been 81, 70, and 86 in the three preceding weeks, slightly fell to 84 last week, and included 18 in London, 7 in Birmingham, and 5 each in Manchester, Oldham, and Sunderland. The deaths attributed to diphtheria, which had been 70, 66, and 89 in the three preceding weeks, fell to 77 last week, of which 19 were registered in London, 5 in Liverpool, 4 in Birmingham, and 3 each in Southampton, Birkenhead, Preston, and Sheffield. The deaths referred to scarlet fever, which had been 34, 30, and 31 in the three preceding weeks, rose to 35 last week; 6 deaths belonged to London, 4 to Sheffield, 3 to Newcastle-on-Tyne, and 2 each to Birmingham and Preston. The fatal cases of enteric fever, which had been 14, 12, and 20 in the three preceding weeks, fell to 15 last week, of which 5 occurred in London and 2 in Bolton.

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had declined from 5035 to 4503 in the six preceding weeks, had further fallen to 4152 on Saturday last; 320 new cases were admitted during the week, against 451, 348, and 436 in the three preceding weeks. These hospitals also contained on Saturday last 1649 cases of diphtheria, 66 of measles, 60 of enteric fever, and 36 of whooping-cough, but not one of small-pox. The 1738 deaths from all causes in London were 311 fewer than the number in the previous week, and corresponded to an annual death-rate of 20·1 per 1000. The deaths referred to diseases of the respiratory system, which had been 313, 270, and 562 in the three preceding weeks, fell to 497 in the week under notice, and were 14 below the number recorded in the corresponding week of last year.

Of the 6736 deaths from all causes in the 96 towns, 265 resulted from different forms of violence and 568 were the subject of coroners' inquests, while 1757 occurred in public institutions. The causes of 66, or 1·0 per cent. of the total deaths, were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in Manchester, Leeds, Bristol, West Ham, Bradford, Hull, Newcastle-on-Tyne, and in 66

other smaller towns. Of the 66 uncertified causes of death, 16 were registered in Birmingham, 13 in Liverpool, 5 each in South Shields and Gateshead, 3 each in Southend-on-Sea and Sheffield, and 2 each in Stoke-on-Trent, Bootle, Rochdale, and Tynemouth.

HEALTH OF SCOTCH TOWNS.

In the 16 largest Scotch towns with an aggregate population estimated at 2,344,400 persons at the middle of this year, 1395 births and 1100 deaths were registered during the week ended Saturday, Jan. 9th. The annual rate of mortality in these towns, which had increased from 17·7 to 20·5 per 1000 in the four preceding weeks, further rose to 24·5 per 1000 in the week under notice. During the 13 weeks of last quarter the mean annual death-rate in these towns averaged 16·8, against a corresponding rate of 14·9 per 1000 in the large English towns. The annual death-rate last week ranged from 12·5 in Motherwell, 14·0 in Ayr, and 14·7 in Perth, to 26·3 in Glasgow, 28·2 in Aberdeen, and 30·0 in Dundee.

The 1100 deaths from all causes were 201 in excess of the number in the previous week, and included 117 which were referred to the principal epidemic diseases, against 77 and 98 in the two preceding weeks. Of these 117 deaths, 55 resulted from whooping-cough, 21 from diphtheria, 17 from infantile diarrhœal diseases, 13 from scarlet fever, 7 from measles, and 4 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 2·6, against 1·4 per 1000 in the large English towns. The deaths attributed to whooping-cough, which had been 35, 28, and 44 in the three preceding weeks, further rose to 55 last week, of which 38 occurred in Glasgow, 8 in Dundee, 4 in Greenock, and 2 in Clydebank. The deaths referred to diphtheria, which had been 9, 16, and 14 in the three preceding weeks, rose to 21, and included 7 each in Glasgow and Edinburgh, and 5 in Aberdeen. The fatal cases of diarrhœa and enteritis (among infants under 2 years), which had been 15, 12, and 11 in the three preceding weeks, rose to 17 last week; 5 deaths each were recorded in Glasgow and Dundee and 3 in Edinburgh. The deaths attributed to scarlet fever, which had been 17, 15, and 17 in the three preceding weeks, fell to 13 last week, and included 9 in Glasgow. The 7 deaths referred to measles were 4 in excess of the weekly average during last quarter, and comprised 6 in Dundee and 1 in Aberdeen. Of the 4 fatal cases of enteric fever 2 belonged to Glasgow and 1 each to Edinburgh and Paisley.

The deaths referred to diseases of the respiratory system, which had increased from 154 to 210 in the four preceding weeks, further rose to 255 in the week under notice; 32 deaths resulted from different forms of violence, against 36 and 42 in the two preceding weeks.

HEALTH OF IRISH TOWNS.

In the 27 town districts of Ireland with an aggregate population estimated at 1,212,330 persons at the middle of this year, 649 births and 615 deaths were registered during the week ended Saturday, Jan. 9th. The annual rate of mortality in these towns, which had been 21·8, 17·0, and 27·8 per 1000 in the three preceding weeks, fell to 26·5 per 1000 in the week under notice. During the 13 weeks of last quarter the mean annual death-rate in these towns averaged 18·8, against corresponding rates of 14·9 and 16·8 per 1000 in the English and Scotch towns respectively. The annual death-rate last week was equal to 36·5 in Dublin (against 20·1 in London and 26·3 in Glasgow), 21·0 in Belfast, 23·1 in Cork, 13·9 in Londonderry, 33·8 in Limerick, and 22·8 in Waterford, while in the 21 smaller towns the mean death-rate was 20·5 per 1000.

The 615 deaths from all causes were 28 fewer than the number in the previous week, and included 38 which were referred to the principal epidemic diseases, against 32 and 42 in the two preceding weeks. Of these 38 deaths, 11 resulted from whooping-cough, 11 from infantile diarrhœal diseases, 6 from measles, 5 from diphtheria, 3 from enteric fever, and 2 from scarlet fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1·6, against 1·4 and 2·6 per 1000 in the English and Scotch towns respectively. The deaths attributed to whooping-cough, which had been 5, 5, and 7 in the three preceding weeks, further rose to 11 last week, and comprised 7 in Dublin, 3 in Belfast, and 1 in Cork. The deaths of infants (under 2 years) referred to diarrhœa and enteritis, which had been 15, 9, and 10 in the three preceding weeks, were 11 last week, of which 7 were registered in Dublin, and 2 each in Belfast and Cork. The 6 deaths from measles were slightly below the average in recent weeks, and were all recorded in Belfast. Of the 5 deaths attributed to diphtheria, 2 occurred in Dublin, 2 in Kilkenny, and 1 in Londonderry. Of the 3 deaths from enteric fever, 2 were registered in Dublin and 1 in Ballymena. The fatal cases of scarlet fever belonged to Dublin and Bangor. In addition to the above deaths, a fatal case of typhus was recorded in Dublin.

The deaths referred to diseases of the respiratory system, which had been 105, 96, and 162 in the three preceding weeks, fell to 139 in the week under notice. Of the 615 deaths from all causes, 182, or 30 per cent., occurred in public institutions, and 6 resulted from different forms of violence. The causes of 30, or 4·9 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the English towns the proportion of uncertified causes did not exceed 1·0 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE undermentioned has been entered as Surgeon for temporary service in His Majesty's Fleet:—Robert Sharp Lawson.

The undermentioned have been granted commissions as Surgeons for temporary service in His Majesty's Fleet, and have been appointed to the *Pembroke*, additional, for Chatham Hospital:—James Edward McCausland and Frank Reginald Featherstone.

ROYAL ARMY MEDICAL CORPS.

Fred D. Bird to be temporary Lieutenant-Colonel (dated Dec. 3rd, 1914).

To be temporary Captains:—Dated Dec. 16th, 1914: Robert Sewers Berry. Dated Dec. 21st, 1914: Edwin Arthur Peters and Arthur Robert Owst. Dated Dec. 23rd, 1914: John Davies.

Temporary Captain Frederick F. Bond resigns his commission (dated Jan. 9th).

To be temporary Lieutenants:—Dated Dec. 5th, 1914: Alfred Cecil Edwards. Dated Dec. 7th, 1914: Bertram Mayhew Bone, William James Gifford Gayton, and Hans Fleming. Dated Dec. 8th, 1914: James Alexander Hendry, John Daniel Harmer, Carl Joseph Barrett Buchheim, Frank Anthony Cooke, Arthur John Ormsby Wigmore, and James Aubrey Ireland. Dated Dec. 10th, 1914: Victor Vesselovsky and Wilfrid Henry Waller Attlee. Dated Dec. 11th, 1914: David Hutcheon Paul. Dated Dec. 14th, 1914: Martin Hallam and Stephen Nockolds. Dated Dec. 15th, 1914: George Barrowclough Horrocks and Herbert Park Shackleton. Dated Dec. 16th, 1914: David Henry Griffiths, David William Jones, Gwilym Llewelyn Pierce, William Frederick Gibson, John Allan, John Henry Herbert Pearson, and George Edward Genge-Andrews. Dated Dec. 18th, 1914: George Ramsey Phillips, Frank Hendry Rae, Philip Hugh Rawson, George Richardson, and William George Thompson. Dated Dec. 19th, 1914: Harold Cane Godding and William Richard Spencer Watkins. Dated Dec. 20th, 1914: Alexander Emil Albert Burkhard. Dated Dec. 21st, 1914: William Miller, Thomas John Burton, Robert Percy McDonnell, Harry Godfrey Massy-Miles, Arthur George Grant Plumley, Kenneth Dobing Bean, Philip John Ambrose Seccombe, William Stewart Dickie, Joseph Graham, Edward William Lawrence, Harry Spencer Hall, George Pirie, Geoffrey Bower Richardson, Kenneth Goodall Hearne, Percival Butler, and Alexander Campbell White Knox. Dated Dec. 22nd, 1914: Donald Olson Riddell and Arthur William Stark Christie.

Lieutenant Edward M. Woodman relinquishes his temporary commission.

Temporary Lieutenant Alfred G. Stewart and Temporary Lieutenant Philip L. Davies relinquish their commissions (dated Jan. 10th).

SUPPLEMENTARY TO REGULAR UNITS OR CORPS.

Royal Army Medical Corps.

Lieutenant Robert McCheyne Linnell to be Captain.

The undermentioned Lieutenants are confirmed in their rank:—Douglas G. Evans, Charles C. Iles, Frank Griffith, John P. Mitchell, Ronald G. J. McEntire, Edward C. Linton, Ennis R. Chambers, John L. Perceval, Alexander Glen, William Barclay, Alfred L. Robertson, Oswald C. S. Tandy, John L. Kilbride, Clement Lovell, Daniel Dougal, Frank G. Lescher, William Johnson, John H. Pendered, Francis Balkwill, Edmund B. Jones, James Vallance, Joseph A. L. Wilson, Ernest Talbot, George R. Bruce, Geoffrey Marshall, William Dunlop, Henry K. V. Soltau, George Dalziel, Alfred J. Clark, William G. Shakespeare, Peter W. Ransom, Joseph I. Lawson, John E. Allan, William McCombie, James Y. Moore, Gerald P. Kidd, Trevor B. Heaton, Harry E. B. White, Kenneth K. Drury, and George M. Roberts.

TERRITORIAL FORCE.

Army Medical Services.

Captain William McC. Wanklyn, Sanitary Service, is appointed Deputy Assistant Director of Medical Services, North Midland Division.

Yeomanry.

City of London (Rough Riders): Surgeon-Captain Robert M. McQueen is seconded.

North Somerset: Private John Henry Trentham Polehampton, from the 2nd South-Western Mounted Brigade, Field Ambulance, Royal Army Medical Corps, to be Second Lieutenant.

Royal Army Medical Corps.

Welsh Border Mounted Brigade Field Ambulance: Lieutenant Devonshire P. H. Gardiner, from Attached to Units other than Medical Units, to be Captain (temporary). Walter Stuart Snell to be Lieutenant.

1st East Lancashire Field Ambulance: Leonard Emilius Harman Ross Barker to be Lieutenant.

3rd East Lancashire Field Ambulance: James Alexander Tomb to be Lieutenant.

1st West Lancashire Field Ambulance: Frederick Ryan to be Lieutenant.

2nd South Midland Mounted Brigade Field Ambulance: Henry George Magrath to be Captain.

1st West Riding Field Ambulance: Captain James Ewing resigns his commission.

1st London (City of London) Sanitary Company: Lieutenant Charles J. D. Gair is seconded.

South Midland Casualty Clearing Station: To be Lieutenants: Laurence Ball and Leonard James Moir.

3rd East Anglian Field Ambulance: Lieutenant William Brander is seconded. Sigismund H. Rentzsch to be Lieutenant.

1st Scottish General Hospital: Officers whose services will be available on mobilisation: Captain John R. Levack to be Major (temporary).

2nd West Lancashire Field Ambulance: To be Lieutenants: Herbert Ellis Marsden and Joseph Henry Mather.

3rd West Lancashire Field Ambulance: To be Lieutenants: Gilbert William Rogers and Sandys Jackson Charlesworth Holden.

1st Welsh Field Ambulance: Edward Blyth Hurst Hughes to be Lieutenant.

Notts and Derby Mounted Brigade Field Ambulance: To be Lieutenants: William Adam Brechin (late Cadet Lance-Corporal, Glasgow University Contingent, Senior Division, Officers Training Corps) and Lewis Moysey.

2nd East Anglian Field Ambulance: Captain William J. Caie to be Major (temporary).

3rd West Riding Field Ambulance: William Thomas Dakin Mart to be Lieutenant

2nd South-Western Mounted Brigade Field Ambulance: Joseph Grant-Johnston to be Lieutenant.

2nd Eastern General Hospital: The undermentioned Captains to be Majors (temporary): Richard Whittington and William H. Brailey.

4th London General Hospital: Charles Eric Wells McDonald to be Lieutenant.

Attached to Units other than Medical Units.—Captain Thomas Beard to be Major (temporary). Captain James M. Kirkness is seconded. To be Lieutenants: Henry William Case, Lancelot William Sparrow, Charles Adolphus Sampson, John Wilson Moir Jamieson, Henry Charles Coutts Hackney, Thomas Richard Webster Atkins, William Neville Pennant Williams, and Lieutenant Maurice H. Barton (from the 2nd North Midland Field Ambulance).

DEATHS IN THE SERVICES.

Surgeon-General William Henry McNamara, C.B., C.M.G., on Jan. 9th, at Ealing, in his seventieth year. He entered the army in 1867, and served in the Egyptian Expedition of 1882, taking part in the battle of Tel-el-Kebir (medal with clasp and bronze star). As principal medical officer of the British Brigade he was with the Nile Expedition of 1898 (mentioned in despatches). During the South African War (1899-1902) he became principal medical officer on the lines of communication (twice mentioned in despatches, Queen's and King's medals, with clasps). He retired in 1906.

Staff-Surgeon Horace Harrison-Smith, late R.N., at Ramsgate, in his ninety-first year. He joined the naval medical service in 1848, became a staff-surgeon in 1856, and retired in 1870, being granted a Greenwich Hospital pension in 1888.

KING EDWARD'S HOSPITAL FUND FOR LONDON.—A meeting of the General Council of this Fund was held at the offices of the Fund, 7, Walbrook, on Jan. 11th, when the Earl of Bessborough presided. The resolutions approved at the meeting of the Governors and General Council held at St. James's Palace on Dec. 16th were formally adopted, and the appointment of the following new members was announced: To the General Council, Lord Mersey and Sir R. Lucas-Tooth; and to the Convalescent Homes Committee, Mr. Kenneth Prescott and Mr. W. Donaldson Rawlins, K.C.

Correspondence.

"Audi alteram partem."

THE LOCALISATION AND EXTRACTION OF BULLETS.

To the Editor of THE LANCET.

SIR,—Mr. E. W. H. Shenton's exposition of his extremely practical and common-sense method of localising bullets, published in THE LANCET of Jan. 2nd, cannot fail to be of great utility in the only too numerous cases of gunshot wounds with which surgeons and radiographers are inundated in these troublous times. I have employed Mr. Shenton's methods of localisation for some years, mainly in South America, a country where one has more opportunities for the study of gunshot wounds than in Europe—that is to say, in times of peace—and I have always been able to obtain an accurate estimate of the position of the bullet in a very short time. But the matter by no means ends with the localisation. However accurate the radiographer's report and skin-markings may be (I agree with Mr. Shenton that photographs are useless in the vast majority of cases), it is often by no means an easy task for the surgeon to remove the bullet or piece of shell easily and expeditiously. Exigencies of local injury or anatomical difficulties may prevent the surgeon from making more than a small incision, very possibly in an awkward plane, and furthermore the topography of the part, clear enough in an X ray or clinical examination, may become considerably obscured when the case is on the operating table, covered over with towels and dressings, so that, even with the most accurate X ray localisation, the surgeon has to hunt about considerably before discovering the object sought for. This may not be the experience of all surgeons in this class of work, but we have certainly found it so in this hospital in the considerable number of operations for removal of bullets that we have already performed.

In consequence, on the suggestion of Captain A. H. Proctor, I.M.S., the surgeon to this hospital, we have evolved the following method of coöperation between surgeon and radiographer, which we find simplifies the operation to a great degree, and, what is more important, shortens enormously the time occupied. The patient is anæsthetised upon the X ray table, or, if preferred, local anæsthesia can be used. A very small skin incision, just large enough to admit the point of a probe, is made near the bullet, already localised by the X rays, at a point selected with due regard to anatomical requirements and the convenience of the radiographer, who will need the probe to be inserted in a direction somewhere near the horizontal. A long stout silver probe, fairly sharp at the point, and provided with the well-known "telephone" attachment, is inserted in the incision and gently forced through the tissues in the direction of the bullet. (It is almost superfluous to say that the probe point should be just sharp enough to worry through the softer tissues, without doing any damage to vessels or nerves. Here we are using a stout 9-inch probe, filed to an edge at the eye end.) With the probe so introduced the surrounding parts and the surgeon's hands are covered with a sterilised towel, under which

the probe can be manipulated quite easily, the lights turned out, and the movements of the probe watched on the fluorescent screen by the radiographer, who by simply moving his X ray tube to and fro, in the manner described by Mr. Shenton in his article, can accurately direct the movements of the probe up, down, or to either side, and can lead the point to the bullet almost at once, when the surgeon will have audible confirmation of the discovery in his telephone receiver. It is remarkable how quickly this can be done, a few seconds sufficing for a task that usually occupies many minutes. The probe once touching the bullet, it is an easy matter to remove the telephone attachment, cover the probe and incision with a small temporary dressing, which also serves to keep the probe from slipping out, and remove the patient to the theatre, where the surgeon, with such a guide, can easily cut down on the bullet, either by enlarging the small incision or in another direction altogether, this latter method obviating any danger of moving the probe while operating. The difficulty is to keep the probe from shifting during the moving of the patient to the theatre, and during the ensuing operation, in which case one's trouble is wasted. To guard against this we are going a step further and completing the entire operation on the X ray table, when screen examinations can be made at intervals if the case presents any extraordinary difficulties. In ordinary cases these are generally unnecessary.

My X ray room here with certain small preparations, such as special lighting, is perfectly suitable for operating, and the table, with a polished wood top, lends itself quite well for the purpose. Of course, the unpractical and complicated design of many X ray tables makes their use in this way impossible, but any of the wooden-topped tables with an efficient tube-moving device below can be utilised with some degree of success. I am constructing a special table for this purpose, closed in at sides and ends, and giving clear access all round for the surgeon, dressers, and the anæsthetist, also having all movements of tube-box, switch, diaphragm and regulating device all controlled by one foot. With some such table as this, and a means of darkening the room effectually and rapidly, I can see no reason why all bullet-extraction operations, and possibly certain bone operations, should not be carried out with the aid of X rays, facilitating and shortening enormously what is usually a tedious and difficult performance.

I am, Sir, yours faithfully,

C. F. CONSTANT,
Lieutenant, R.A.M.C.; Radiographer to the Meerut Indian General Hospital.
Brockenhurst, Hampshire, Jan. 5th, 1915.

THE PROPHYLACTIC TREATMENT OF PUERPERAL INFECTION BY DILUTE SULPHURIC ACID.

To the Editor of THE LANCET.

SIR,—I am entirely indebted for the idea of this mode of treatment to the valuable paper in THE LANCET of March 15th, 1913, by Dr. J. Reynolds and Dr. Russell J. Reynolds entitled, "On the Treatment of Carbuncles, Boils, Staphylococcic Infections, and Certain Streptococcic Infections by the Internal Administration of Large Doses of Dilute Sulphuric Acid B.P."

I think the medical profession owe a debt of gratitude to Drs. Reynolds for the discovery of this valuable therapeutic measure. The prophylactic treatment of puerperal infection I advocate is simply an extension of their mode of treatment to another septic condition, or I should say to the *prevention* of a septic condition, for just as I am firmly convinced that the administration of large doses of dilute sulphuric acid has a powerful effect on limiting and aborting such conditions as boils, carbuncles, so I believe the administration of this remedy has a powerful effect in increasing the resisting powers of the tissues to infection, and thus preventing infection if given early enough in such cases as childbirth, where there is a large wound surface, and always a possibility of infection.

After seeing the paper referred to above by Drs. Reynolds I commenced using the remedy as described by them for boils, carbuncles, and similar conditions. The improvement in most cases was both rapid and remarkable. I then decided to use the drug in puerperal cases in which there was any degree of puerperal morbidity, in the hope that it would limit the septic condition, as in the cases of boils, carbuncles, and other infections. The clinical results in the few cases tried were satisfactory, the administration of the drug being followed by a reduction of the pulse-rate and lowering of the temperature.

I then decided to use the drug as a prophylactic measure against infection in all labours in which there had been manipulations or operative interference, commencing the administration immediately after labour and continuing during the puerperium. I now use it as a routine treatment in all labours, whether instrumental or not. I think the action of the drug is due to the fact that when given in maximum doses it decreases the alkalinity of the blood.

I quite agree with Drs. Reynolds that the drug is useless unless given in maximum doses. I give it in 20 minim doses, with 30 minims of tinc. aurantii and water to one ounce; an ounce every four hours in an ounce of water. It is difficult to judge by results in the prophylactic treatment of any disease, as there are so many other factors to be taken into consideration, but I believe the drug is worthy of a real trial in the treatment of puerperal infection, and more especially as a prophylactic measure against infection. I believe the diminution in the alkalinity of the blood increases the resisting forces of the tissues to infection, but this needs further proof.

The one case of puerperal infection I have seen in which the dilute sulphuric acid had no beneficial effect was a case I saw in consultation—acute septicæmia. I suggested trying large doses of dilute sulphuric acid; it had no effect. The patient ultimately died. I was told shortly afterwards by a lady friend of the patient that for three or four weeks previous to her confinement the patient had been in the habit of taking three times a day a teaspoonful (heaped up) of sodium bicarbonate moistened with a little water to relieve indigestion and flatulence. Might not the large doses of sodium bicarbonate have increased the alkalinity of the blood, and so reduced the resisting powers of the tissues to infection, and might it not have counteracted any beneficial effect the acid might have excited? These are questions of the utmost importance.

I make no apology for bringing forward the subject of the prophylaxis of puerperal infection, it is one of vital importance. The mortality from

puerperal infection is still far too high in spite of all our antiseptic precautions.

We have so far devoted all our attention to the perfection of our antisepsis, but surely the question of increasing the resisting powers of the individual to infection is one of real and practical importance. My own experience is too limited to give a definite opinion as to the exact value of this drug as a prophylactic agent, but from my own observations it certainly is of value in mild cases of puerperal morbidity. All that I ask is that an extended trial may be given the treatment by those who have greater opportunities of studying its effects, and if it is found, as I believe it will be, that the treatment is of real value, the medical profession will owe an increased debt of gratitude to the introducers.—I am, Sir, yours faithfully,

Congleton. J. L. MOIR, M.B., Ch.B. Vict.

A SUGGESTION FOR A NEW "BOWEL PACK."

To the Editor of THE LANCET.

SIR,—In introducing this simple contrivance to the notice of the profession I do so more to meet the difficulties experienced by general surgeons like myself than to offer assistance to those who never find any difficulties in any circumstances. The ordinary "bowel pack" is, I think, open to objections. Indeed, to start with, the packing of protruding bowel with many feet of gauze pads, &c., is to my mind unscientific, takes time, unnecessarily blocks a limited space, and in the end does not always attain its object. Something is required completely to shut off the bowels from the area to be operated upon, which does not take up unnecessary space, which can be easily moulded, and will retain its position.

To meet these requirements I coil fine wire between two layers of lint. The fine wire gives a certain amount of weight, and it can be moulded and bent into any shape. These pads can be made by any nurse. A piece of lint the size of the pad required is simply laid flat, then starting from the centre the fuse wire is coiled in oblong fashion, tacked at each corner at first, and down the long sides as the oblong enlarges, until the lint is covered; a second piece of lint is then placed over the wire and sewn round. I use pads varying in size from 15 or 18 inches by 10 to 9 by 5. For large size pads I use what is known as 5-amp. fuse wire and for smaller ones 3-amp. wire. The wire should be one-third of an inch apart in the large and one-quarter in the small. It is convenient to use the wire coiled upon its original reel. Only one precaution is suggested—namely, to begin and end the wire with a small loop so as to leave no free point. The pad can be thoroughly sterilised by boiling and squeezed out in warm saline before use.

To illustrate the advantage of this pad I will briefly quote a recent case when the contrivance proved very valuable. A lady was sent to me with a large fat abdomen, presenting a central scar. To the left of the scar was a large rounded swelling, diagnosed on several occasions as a ventral hernia. Vaginal examination disclosed a displaced uterus and little more. I made a large oval skin incision and removed the scar, together with a two-inch thickness of fat. A good view could then be obtained. The left rectus was thinned and bulged up by some underlying tumour. I next opened the old scar and peritoneum, and at once introduced one of my largest pads with its long axis transversely.

In introducing the pad I had pressed it together, then opened out, and packed well down to the post abdominal wall, then pushed the upper edge well under the anterior wall above the umbilicus. Next I pressed the whole of the pad upwards. The tumour, a right ovarian cyst measuring about 8 inches by 8, presented itself quite free from any bowel. I then freed the cyst, carefully tied it off with tape, clamped and sutured in the usual way. The pad was then removed quite easily without any disturbance of the bowels.

I have found this pad very useful in packing bowel away from large appendix and pyosalpinx abscesses and in various other abdominal operations. The necessity to use only one pad does away with many anxieties and achieves a definite object.—I am, Sir, yours faithfully,

J. L. AYMARD, M.R.C.S., L.R.C.P.

Johannesburg, Dec. 15th, 1914.

THE "SHORTAGE" OF DOCTORS.

To the Editor of THE LANCET.

SIR,—The President of the General Medical Council has stated that the number of medical students now studying is about 1000 less than in 1913. He adds that the prospective diminution of our reserve supply of doctors calls for serious attention.

Sir Donald MacAlister gives no reasons for this falling off. There is little doubt but that the falling off in the number of medical students is due to the medical arrangements under the National Insurance Acts. Before these Acts were passed the newly qualified doctor could look forward to making sixpenny, shilling, and half-crown fees from a portion of the public now supplied under the Insurance Acts.

He also finds that these Acts have robbed him of the money he used to make by the supply of medicines, a loss of about £1,360,000 yearly. He finds that his private vaccination is now largely carried out by public vaccinators; that about three-fourths of his obstetric practice has been transferred to midwives; that the school board medical officers now examine, and in some places treat, the sick children; that many more patients are going into the Poor-law, voluntary, and municipal fever hospitals and into sanatoriums for consumptives; that the birth-rate and sick-rate are falling; and that prescribing chemists and quacks of all kinds are on the increase.

How can anyone hold that to encourage an increase in the number of medical students would not be a national danger? Doctors are called upon to perform many criminal acts, but if my "poverty but not my will consents" be a valid excuse, then an overplus of doctors is indeed a danger. The existence of so many medical and surgical homes will soon—if it have not already—become a public danger. Some can recall the grave dangers due, years ago, to doctors owning and "running" private asylums. Instead, therefore, of deploring a falling off in the number of medical students we should all rejoice at the fact. It will be a true gain to the public. For if there be anything more damnable in this world than a doctor having to go on his knees to pray to heaven to make his neighbours ill, so that he may provide daily bread for himself, his wife, and children, I should like to know of it.

The condition is lower, more degrading, than that of prostitution. No doubt a large number of lecturers, coaches, and professors will undergo a financial loss by a falling-off in the number of medical students; so will the medical examiners of students for their diplomas. No doubt some of the young men who have gone to the war and who would have otherwise entered as medical students will so enter when the war is over. The present drop is partly due to the war. No doubt it is also a reaction against the sadly overcrowded condition of the medical profession. We can accept Sir Donald MacAlister's statement that if the falling off in the number of medical students continues there may be a falling off in the number of doctors of 200 to 300 yearly.

So great was the dangerously overcrowded state of the medical profession that in 1886 the Medical Council issued a very ominous report, giving a census of medical practitioners in England and Wales. That report showed that in 1881 there were 15,022 practitioners registered in England, and in 1886 16,930, showing a rate of increase of 2·42 per cent. per annum. In the former year there was on an average 1 practitioner to 1747 persons, while in 1886 the average was 1 to 1662. Therefore the doctors had increased at the rate of 2·42 per cent. per annum, while the general population had increased by only 1·40 per cent. per annum. Why, therefore, should we bemoan the fact that the number is still falling? If there be healthy law in that of supply and demand, why should we when having a falling death-rate, a falling sick-rate, and a falling birth-rate contend that we must have a *rising* increase of doctors? It is generally accepted that we should have on an average about 3500 persons to each practitioner, for it must be recollected that fully one-third of the population receive free medical treatment and another third for a little above nothing. It is a pity Sir Donald MacAlister did not refer not only to the number of students but also to the number of doctors practising in the United Kingdom. According to the Medical Directory (not the Medical Register) the following table shows the number of doctors practising in each division of the United Kingdom on Jan. 1st, 1915:—

		Population.
London	6,715	
Provincial	18,109	36,070,492
Wales	1,415	
Scotland	4,070	4,760,904
Ireland	2,971	4,390,219
Total	32,290	

It will thus be seen that there is 1 doctor to 1401 persons of all ages, all incomes, and classes. It is also instructive to note that the increase of the number of practitioners for 1914 was 527, for 1814 158, and 1813 280. Therefore the number of practitioners is going up by hundreds, while the proportion of doctors to the population has increased by 1 practitioner to 1041 persons. In 1886 it was 1 to 1662.

If it be contended that there are not *at present* sufficient doctors for war and other purposes, I would suggest that such a condition—if it exist—could readily be met. At present a number of practitioners are employed to examine children at the elementary schools, 317 acting as principal medical officers and 524 as assistant medical officers. Supposing these 841 are required for war purposes, it would be quite easy to fill their places by the doctors who practise in the school locality. Or again, a large number of those who act as resident medical officers to Poor-law, voluntary, and municipal free hospitals could be taken for war purposes if their places were temporarily filled by the local practitioners who do not hold hospital posts. The time must come when a full staff of visiting physicians and surgeons must be appointed to all the large Poor-law hospitals, and this is the time to make a beginning. I should not think that 5 per cent. of the practitioners in the United Kingdom have been called away to join the army and navy, for according to the Medical Directory there were 3366 medical officers in our navy and army last year. Poor-law guardians and others must not think there is a "shortage" of doctors simply because they cannot obtain a resident medical officer or a visiting medical officer for £50 to £120 a year. The school medical officer, whose duties are very light, obtains a minimum of £250 to £300 per annum from the majority of the educational authorities.

I am, Sir, yours faithfully,

Liverpool, Jan. 11th, 1915. ROBERT R. RENTOUL.

OUR ARMY'S TEETH.

To the Editor of THE LANCET.

SIR,—The dental expert going to the war with the intention of doing good for poor Tommy's teeth is at first confident that it is simply a matter of money, and he thinks that if he had a blank cheque from Mr. Lloyd George he could put things right, but after three months' toil and vast worry he begins to understand that even with the Bank of England at his back he could not evolve a sound scheme under existing conditions. And things are growing worse, for the teeth of those who are coming out now are not even so good as those of the earlier arrivals. It seems probable that when the New Army has arrived there will be battalions of men to return on account of their teeth. It is no rare sight to find a young soldier who has not two back teeth that meet, and dozens of men have to be reported as dentally unfit for service. It would be wearisome to state the causes and complications at length, but I inscribed many of their reports with brief remarks which, if strung together in readable form, represent the pith of my experience: "Dental caries is avoidable; it is due to dental dirt, and nine-tenths of it would be obviated if the teeth were brushed properly after every meal. The British army abandoned its toothbrush during the Great Retreat, and it has not been seen since. If the 'Jap' can clean his teeth on the battlefield, so can the English. Extra pay should be given for good teeth, and there should be an army dental corps to keep them right. Allowances to soldiers, their wives and children, in time of peace should cease whilst their teeth are neglected. Children should be taught to clean their teeth after every meal from the time they cut the first milk tooth."

Statistics are less hateful when quoted in millions, and we are expecting one or two million soldiers within the next few months. Apart from the edentulous, each man will require on the average a filling or two, probably several fillings. To put it very mildly, there will be several million fillings required, and the crucial question is, "Can it be done here?" I believe it is too big a thing without a mobilisation order. Gladly would I see my profession get its order to march. Many of the young men would be stationed behind the trenches in order to destroy an exposed pulp or to do a filling or two for a man who was otherwise sound. Others

would be attached to all the hospitals on the way to the base. At every large hospital or base there would be an efficient dental department sufficient to attend sick and convalescent men and to repair artificial teeth. Only the overflow and bad surgical cases would go to the ultimate base in London. The question arises as to how far this system can be adapted to existing conditions. The small number of dental officers with the army will be lost amongst one or two million soldiers. So nearly everything must go to London for treatment. There, of course, they will be distributed amongst all the hospitals, dental departments, and clinics which appoint dental surgeons in town and in the country. Many of the men are ready to pay for artificial teeth at about hospital prices, and when a man has bought his own teeth he is inclined to take great care of them.

One naturally inquires how the French soldier gets on with his food, and I am told that the French piou-piou is no better off than our Tommy in the matter of teeth, but his food is softer and generally consists of soup, meat, and vegetables all cooked together. Our men get "stew," but what they really like is a good bit of beef when they can eat it.

Under the recommendations that I have made we should get rid of most of the dental caries without treatment beyond inspection, but the fight to insist on dental cleanliness would be long and bitter. Unfortunately we cannot say that even the most educated and enlightened people are cleanly in the matter of their teeth. Their mouths would not stand inspection, and their tooth-brush would not always be beyond criticism in these days of oral sepsis.—I am, Sir, yours faithfully,

F. NEWLAND-PEDLEY, F.R.C.S. Eng.

British Red Cross Hospital No. 2, Rouen, Jan. 8th, 1915.

BRUSSELS MEDICAL GRADUATES' ASSOCIATION:

BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

To the Editor of THE LANCET.

SIR,—Might I be permitted through your columns to thank those who have so kindly contributed to the above Fund. The amount received is £112 2*s.* 6*d.*, and the whole of it has been handed over to Dr. H. A. Des Vœux.

I am, Sir, yours faithfully,

MAJOR GREENWOOD,
Treasurer.

243, Hackney-road, N.E., Jan. 10th, 1915.

DEGLUTITION IN ACUTE TONSILLITIS.

To the Editor of THE LANCET.

SIR,—A recent personal painful experience has brought to my knowledge a fact of which I was previously unaware, and which I hope may prove of comfort and service to those who suffer from acute tonsillitis and those who have the care of them. An attack of acute tonsillitis chiefly affecting the right side had rendered deglutition whether of liquids or solids a matter almost of impossibility on account of the pain it caused. Under such circumstances one naturally inclines to keep all food in the opposite side of the mouth, and so as far as possible from the affected part; and those who have suffered will remember well the pain that occurs when the bolus is delivered into the grip of the pharynx.

Quite accidentally I discovered that the pain on deglutition is very much less if the food be prepared, so to speak, and collected on the affected side; then when the act of deglutition occurs it would seem that it is projected against the opposite side of the pharynx and so misses the acutely tender part. What the exact mechanism of this manœuvre is I do not know, but I am able to bear witness of the very great difference it makes to one's comfort when it is adopted. Fortunately the inflammatory condition in my own case did not exist long enough to enable me to carry out any number of experiments, but as far as they went they confirmed the initial one. This small fact may be known to many, but to those who are unaware of it it may, I hope, prove of service.

I am, Sir, yours faithfully,

THOS. H. KELLOCK.

Upper Wimpole-street, W., Jan. 6th, 1915.

THE ETIOLOGY OF POLIOMYELITIS.

To the Editor of THE LANCET.

SIR,—An interesting fact in Dr. George Jubb's paper published in THE LANCET of Jan. 9th is the occurrence of cases of poliomyelitis at West Kirby for the third year in succession in the same parish. This, I think, is an unusual experience in this country. My own experience with poliomyelitis has indicated as frequent coincidences the proximity to an infected cottage of stables or cowsheds, the presence in the house of several specimens of stomoxys calcitrans (the biting stable fly), and not infrequently direct evidence of the child having complained of the flies biting. Anderson and Frost have supplied direct experimental evidence of the conveyance of poliomyelitis infection by stomoxys from artificially infected monkeys to other monkeys.

It would therefore be of much interest to know the relative position of the infected houses in West Kirby and Hoylake to the nearest stables or cowsheds (distances should be given approximately in yards). This information would be of value; but the case for the stomoxys would not be limited to such evidence. An important fact mentioned by Dr. Jubb is that the Hoylake cases had a common milk-supply. Further information required here is whether the *same horse* and man carried the milk, because stomoxys having a particular liking for warm horse blood would be carried any distance on a horse, even though occasionally disturbed by tail-swishes.—I am, Sir, yours faithfully,

J. T. C. NASH,
County Medical Officer of Health.

The Shirehouse, Norwich, Jan. 9th, 1915.

THE MEDICAL SOCIETY OF LONDON.

To the Editor of THE LANCET.

SIR,—Owing to the war the usual programme for the second half of the session will not be issued, but postcards will be sent to Fellows from time to time giving details of the arrangements made.

The meeting arranged for Jan. 11th was not held. On Jan. 25th, at 8.30 P.M., arrangements have been made to have an X ray evening, when Dr. Ironside Bruce, Sir James Mackenzie Davidson, Dr. F. H. Humphris, Dr. Harrison Orton, Dr. A. Jordan, and others, will demonstrate and exhibit items of interest connected with the war. On Feb. 8th Sir Victor Horsley, F.R.S., will open a discussion on Gunshot Wounds of the Head.

We are, Sir, yours faithfully,

GEORGE E. GASK,
HERBERT FRENCH,
Honorary Secretaries.

Chandos-street, Cavendish-square, W., Jan. 12th, 1915.

The Belgian Doctors' and Pharmacists' Relief Fund

THIS FUND is being raised to organise relief for Belgian Doctors and Pharmacists, both those remaining in Belgium and those who are refugees in this country

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Chairman—SIR RICKMAN J. GODLEE, Bart.

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Mr. W. J. UGLOW WOOLCOCK, *Secretary and Registrar of the Pharmaceutical Society*, 17, Bloomsbury Square, London, W.C.

} *Honorary Secretaries.*

It is requested that correspondence addressed to the Honorary Secretaries should be marked "Belgian Fund."

Subscriptions should be sent to Dr. H. A. Des Vœux, and cheques should be made payable to the "Belgian Doctors' and Pharmacists' Relief Fund," and crossed Lloyds Bank, Ltd.

THE GENERAL COMMITTEE

This Committee is in process of formation. It already includes the following names in addition to those of the Executive Committee :—

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THE OBJECTS OF THE FUND

The Committee was started in reply to an appeal from Belgium, brought by Professor C. Jacobs of Brussels, who represented in moving terms the terrible position in which his colleagues and also the pharmacists in that gallant country were involved. At the same time, the giving of assistance to the members of the medical and pharmaceutical professions and their families who are refugees among us is clearly a matter of urgency and a worthy object of subscriptions. It was recognised at the outset that it would be impossible, while the German occupation lasted, to do more for the doctors and pharmacists in Belgium than to despatch certain packets of medical material with which the misery created by the wholesale destruction of laboratories and pharmacies might be relieved. A start has been made in this direction, and packets will be sent regularly when it is known that they can reach their destinations without interference. The position of the refugees of the two professions is in many instances utterly sad, and a large amount of money could be usefully expended to meet their immediate needs.

The plight of the pharmacists of Belgium is as heartrending as the position of the medical men, and their present needs, as well as their eventual necessities, should appeal with peculiar force to the pharmaceutical community of Great Britain. Much has been done already unofficially in the way of organising practical sympathy on behalf of those expatriated pharmacists who have taken refuge in this country, but the problems that are daily arising, together with the claims which will ultimately reveal themselves, can only be met successfully and in a manner worthy of the occasion by systematic coöperation on the lines suggested in this appeal. The President and Vice-President of the Pharmaceutical Society of Great Britain feel that British pharmacists will be proud to share the honour of repaying, in part, the enormous debt of gratitude which Great Britain owes to Belgium for its heroic sacrifices.

A comprehensive scheme is being organised under which an appeal will be made to all Scottish practitioners. A large Committee is being formed from representatives of the Universities, the Royal Colleges of Physicians and Surgeons, the Royal Faculty of Glasgow, and the pharmaceutical profession.

In Ireland the Royal College of Physicians and the Royal College of Surgeons have already taken action. A Committee including the Presidents of the Colleges,

the President of University College Dublin, the President of the Pharmaceutical Society, and many leaders of the medical profession has been formed. The Registrar of the Royal College of Physicians (Dr. T. Percy C. Kirkpatrick) and the Secretary to the Council of the Royal College of Surgeons (Dr. C. M. Benson), combine the offices of treasurer and secretary, and subscriptions may be sent to either at the Royal College of Physicians, Kildare-street, Dublin. A substantial sum of money has been already received.

The Master of the Society of Apothecaries of London, in reply to a request published in the medical journals, has received at the Apothecaries' Hall, Blackfriars, London, E.C., many surgical instruments for distribution among Belgian practitioners, and these are still being generously presented.

The Committee has already done much preliminary work, and its various steps have been reported weekly in *The Lancet* and the *British Medical Journal*, in both of which journals Dr. Jacobs's appeal was published on Nov. 21st. But sight has not been lost of a larger object. Sooner or later the rehabilitation of Belgium will be an honourable charge upon the countries saved by her courage. No doubt the State will take control of large measures to this end, but there will be room for international action whereby the doctors and pharmacists all the world over can coöperate in aiding their Belgian colleagues to a re-establishment of their professional positions. At the right time this Committee will be ready to take its share in such a movement.

SUBSCRIPTIONS RECEIVED

The following subscriptions have been received up to Jan. 5th, 1915.

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Dr. J. W. Eastwood ...	1	1	0
Mr. H. A. Wanklyn ...	1	1	0
Dr. A. D. Jules	1	1	0
Dr. Fiske	1	1	0
Dr. W. Haward	1	1	0
Dr. J. Wm. Roberts ...	1	1	0
Dr. G. I. Dudley	1	1	0
Dr. Chas. Buttar	1	1	0
Dr. Thos. McCririck ...	1	1	0
Mr. G. S. Kitchin	1	1	0
Mr. W. McCallum	1	1	0
Mr. John Weir	1	1	0
Mr. C. W. Holmes... ...	1	1	0
Mr. J. H. Bishop	1	1	0
"Secundo Curo"	1	1	0
Mr. H. Jenkins	1	1	0
Mr. F. W. Monsell... ...	1	1	0
Mr. E. Quant	1	1	0
Dr. G. Basil Price	1	1	0
Dr. J. T. Rogerson... ...	1	1	0
Dr. J. P. Lusk...	1	1	0
Dr. Duigan	1	1	0
Dr. Charles Gibson ...	1	1	0
Dr. Samuel Davidson ...	1	1	0
Staff-Surgeon Douglas D. Turner	1	1	0
Medical Staff, R.N. Hospital, Dunskaith ...	1	1	0
Mr. F. Slater	1	1	0
"Sincere Sympathiser"	1	1	0
Dr. Walter Dodd	1	1	0
Dr. Howard S. Wilson	1	1	0
Dr. J. Sutcliffe	1	1	0
Dr. J. Troup	1	1	0
Dr. C. W. Buckley	1	1	0
Miss M. H Fraser	1	1	0
Dr. A. W. Tuxford	1	1	0
Dr. C. P. Handson... ...	1	1	0
Dr. E. J. Wood	1	1	0
Dr. Guy B. Courtney ...	1	1	0
Dr. H. Cooper Pattin ...	1	1	0
Dr. E. T. Larkham ...	1	1	0
Surg.-General O'Dwyer, A.M.S.	1	1	0
Mr. W. H. Vickery ...	1	1	0
Dr. Rossiter	1	1	0
Dr. South	1	1	0
Dr. D. H. Forty	1	1	0
Dr. H. Finzel	1	1	0
Dr. Semple	1	1	0
Dr. John Watson	1	1	0
Mr. Prosper H. Marsden	1	1	0
Mr. R. C. Fuller	1	1	0
Dr. S. M. Salaman... ...	1	0	0
"Anon."	1	0	0
Dr. W. Townsend Storrs	1	0	0
Dr. H. Witham	1	0	0
Dr. F. A. Hepworth ...	1	0	0
Dr. H. M. Eyres	1	0	0
Dr. J. G. Jack...	1	0	0
Mr. A. Smith	1	0	0
Mr. G. F. Gubbin	1	0	0
Dr. C. Lillingston	1	0	0
Dr. H. E. Croker Fox ...	1	0	0
Mr. G. P. K. Grey... ...	1	0	0
Dr. G. Crichton	1	0	0
Surgeon - Captain G. Sherman Bigg	1	0	0
Major C. E. Pollock, R.A.M.C.	1	0	0
Dr. Pelham C. Maitland	1	0	0
Dr. Dora E. L. Bunting	1	0	0
Smaller donations ...	14	14	6

For Subscriptions received this week see opposite page.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

DURING the week ending Tuesday, Jan. 12th, the subscriptions received to the Fund have been numerous, and a contribution of £112 2*s.* 6*d.* has been sent since through Dr. Major Greenwood from the Brussels Medical Graduates' Association.

The directors of the British Milk Products Company have announced their intention of sending a portion of their takings by the sale of sanaphos for one month from Monday next to the Fund, guaranteeing that the contribution shall be not less than 150 guineas.

Among those who have joined the General Committee since the last list of names was published may be mentioned Sir William Milligan, Sir Thomas Barclay, Professor Marnoch, and Professor Munro Kerr.

A meeting of the Executive Committee was held on Thursday afternoon, Jan. 7th, when the question of opening up communication with Belgium for the purpose of ministering to the wants of the Belgian doctors and pharmacists was discussed in the light of information from the United States. In the United States work similar to that which the British Fund is doing has been started. An American committee of medical men will operate through the International Commission for Relief in Belgium and will have packages, prepared by instrument makers and pharmaceutical houses of the United States, shipped for distribution in Belgium upon exactly the same method as the British Fund has adopted.

A meeting of the subcommittee empowered for the present to make emergency grants was held on Friday, Jan. 8th, when Dr. Clément Philippe attended to represent the Belgian Medical Society in London, and placed before the subcommittee the details of various cases. The grants were made. A representative of Messrs. Harrods, Limited, was present, and a guarantee was given to that firm for the supply of clothes of an agreed class to Belgian doctors whose names were submitted by Dr. Philippe.

A circular explaining the objects of the Fund, which has been widely distributed to the medical profession, will be found on page 153, and a leading article deals further with the matter this week.

The subscriptions which have been received up to Tuesday evening last by Dr. Des Vœux, in addition to £2654 previously acknowledged, and not including the subscriptions received in Dubin, are as follows:—

	£	s.	d.
Royal College of Surgeons of England ...	52	10	0
Dr. W. E. de Korte ...	3	3	0
Dr. J. Mitchell Wilson...	1	1	0
Dr. P. J. Freyer	5	5	0
Dr. G. E. Haslip	3	3	0
Dr. Porter...	0	10	6
Dr. C. M. Pilcher (per Dr. Tuxford, Boston)	1	1	0
Dr. de Havilland Hall (second donation) ...	2	0	0
Mr. Lawford Knaggs ...	5	0	0
Mr. H. Elwin Harris ...	2	2	0
Dr. Alfred Mantle	3	3	0
W. H. Quarrell, Esq. ...	1	0	0
Dr. Margaret Orange ...	0	10	0
Mr. A. Wight	1	1	0
Dr. Clive Riviere	2	2	0
Dr. D. Fogarty	1	1	0
Surg. B. Bradburn, R.N.	1	1	0
Dr. George Macdonald	1	1	0
Mr. H. A. Barford	2	2	0
Dr. Waterhouse	3	0	0
Mr. Alfred Winkfield ...	5	5	0
Dr. Alex. Stuart	10	10	0
Mr. C. F. Hawkins ...	1	1	0
Dr. Morgan Richey ...	2	2	0
"Quattuor"	0	10	0
Mr. M. Cashmore	1	1	0
Salford Division, B.M.A. (per Dr. J. P. Elias, Hon. Sec.)—			
Dr. P. Benington	1	1	0
Dr. J. Bradley ...	1	1	0
Dr. Davie	1	1	0
Dr. Dobbs	0	10	0
Dr. J. P. Elias... ...	1	1	0
Dr. S. B. Haynes ...	0	10	0
Dr. F. Mercer	1	1	0
Dr. James Morrow	1	0	0
Dr. Pilkington... ...	2	2	0
Dr. E. T. Scowby ...	0	10	6
Dr. W. J. Sprott ...	1	1	0
Dr. J. P. Williams...	1	1	0
Messrs. Curtis and Co....	2	2	0
Mr. Albert Lucas	2	2	0
Mr. J. Need	1	0	0
Dr. H. Darwin Hey ...	1	1	0
Mr. C. W. O'Brien... ...	5	5	0
Birmingham Local Committee (per Dr. Robert Saundby)—			
Professor Gilbert Barling	10	10	0
Mr. Christopher Martin	5	5	0
Mr. J. T. Hewetson	5	5	0
Dr. Pursiow	5	0	0
Professor Haslam ...	3	3	0
Mr. Leonard Gamgee	2	2	0
Dr. Lilley	2	2	0
Dr. W. T. Lydall ...	2	2	0
Dr. Leonard Hackey	1	1	0
Dr. Thomas Nelson	1	0	0
Mr. Arthur Oakes...	0	10	6
Dr. T. S. Short ...	5	5	0
Dr. T. M. Tibbits ...	3	3	0
Mr. T. B. Ward ...	2	2	0
Mr. Frank Barnes...	2	2	0
Dr. Mary Sturge ...	2	2	0
Dr. C. W. Suckling	2	2	0
Mr. G. P. Mills ...	2	2	0
Mr. J. F. Stockwell	2	2	0
Dr. William Gordon	2	2	0
Dr. John Robertson	2	2	0
Dr. W. A. Morris ...	1	1	0
Dr. Alice Maclean...	1	1	0
Dr. Haitly Burn ...	1	1	0
Mr. Bertram Lloyd	1	1	0
Dr. George St. Johnston...	1	1	0
Mr. Gilbert Smith...	1	1	0
Dr. Smallwood Savage	1	1	0
Anonymous	1	0	0
Dr. E. Watt	1	1	0
Dr. Marion S. Linton ...	5	0	0
Dr. J. K. Jones	1	1	0
Dr. Richard Ainsworth	2	2	0
Dr. George E. Percy ...	5	0	0
Dr. Thomas Wilson ...	3	3	0
Dr. William Glaister ...	2	0	0
Dr. W. B. Drummond...	3	5	0
Warrington Branch of B.M.A. (per Dr. T. A. Murray)—			
Dr. R. Kennon ...	0	10	0
Dr. J. Bennett... ...	0	10	0
Dr. Henry Langdale	0	10	0
Dr. Lindsay	0	10	0
Dr. G. Binns	0	10	0
Dr. G. T. Schofield	0	10	0
Dr. J. B. Naden ...	0	10	0
Dr. A. J. Hutton ...	0	10	0
Dr. J. D. Liston ...	0	10	0
Dr. E. J. Geary ...	0	10	0
Dr. F. R. Seager ...	0	10	0
Dr. Arthur Anderson	0	10	0
Dr. T. U. Mercer ...	0	10	0
Dr. O. H. Edwards ...	0	10	0
Dr. F. J. Breakell ...	0	10	0
Dr. E. B. Bowden ...	0	10	0
Dr. J. S. Manson ...	0	10	0
Dr. Ian Ogilvie ...	0	10	0
Dr. Hodgkinson ...	0	10	0
Dr. C. Hutchinson	0	10	0
Dr. G. H. Joseph ...	0	10	0
Dr. D. Ferguson ...	0	10	0
Dr. T. A. Murray ...	0	10	0
West Suffolk Division, B.M.A. (per Dr. B. E. A. Batt)—			
Subscriptions from Doctors in West Suffolk	23	16	0
Collected by Doctors in West Suffolk ...	5	1	0
Boxford Parish Church, Christmas Day Collection ...	5	0	0
Dr. H. W. Ainley Walker	1	1	0
Dr. James Hewlett ...	2	2	0
Bolton Division, B.M.A. (per Dr. T. O'Neill, Hon. Sec.)—			
Dr. Kershaw	2	2	0
Sir T. E. Fliteroft ...	5	0	0
Dr. A. Cosgrave ...	2	2	0
Dr. J. Johnston ...	2	2	0
Dr. R. S. Robertson	2	2	0
Drs. Wright and Cochrane	5	0	0
Dr. J. S. Sewell ...	1	1	0
Dr. J. L. Falconer ...	2	2	0
Dr. H. Jefferies ...	5	0	0
Dr. W. A. Hatton ...	1	1	0
Dr. G. P. Alderson	1	1	0
Dr. Rees	2	2	0
Dr. Agnes Bernfeld	0	10	6
Dr. Pickering	3	3	0
Dr. F. E. Dowling	2	2	0
Drs. Boulton and Robinson	3	3	0
Dr. Cross	2	2	0
Dr. T. O'Neill	2	2	0
Dr. Geo. Mowatt ...	1	1	0
Dr. R. D. Mothersole	5	0	0
Dr. J. M. Thornley	3	3	0
Dr. J. D. Marshall	2	2	0
Messrs. Potter and Clarke	2	2	0
Dr. F. Van Allen	2	0	0
Mr. F. J. Gibson	3	3	0
Mr. C. B. Allen	5	0	0
Mr. A. H. B. Bell	1	0	0
Mr. S. R. Atkins	1	1	0
Mr. T. A. White	2	2	0
Mr. J. Parrott...	1	1	0
Mr. J. Rymer	5	0	0
"K.H."	1	1	0
Mr. W. L. Currie	1	1	0
Mr. A. I. Robinson ...	0	5	0
Mr. I. Bourdas	5	0	0
Mr. A. S. Campkin ...	3	3	0
"Sterilla,"	1	1	0
Messrs. Maw, Son and Sons	5	5	0
Leeds and District Chemists' Association (per Mr. H. Gilleghan)	57	2	6
Mr. W. H. Gibson	5	0	0
Anonymous	0	10	6
Mr. Chas. Umney (second donation) ...	3	3	0
Publisher, *The National Druggist*, St. Louis, U.S.A.	5	0	0
Mid-Cheshire Division, B.M.A. (per Dr. A. T. Blease)—			
Dr. F. Cox, Dr. M. Manwaring-White, Dr. R. R. Duncan, Dr. A. McDougall, Dr. W. Turner, Dr. H. B. Gore, Dr. T. M. Hughes, Mr. W. Owen Jones, Dr. Annie T. Brunyate, Dr. H. A. Burrowes, Dr. T. W. H. Garstang, Mr. H. Leak, Dr. W. H. Tattersall, Dr. P. R. Cooper, Mr. L. C. A. Savatard, Dr. R. Terry, Dr. W. Nicholson, Dr. A. Young, Dr. A. T. Blease, Dr. E. L. Luckman ...	19	7	0
Professor C. S. Sherrington	1	1	0
Dr. J. A. Drake	1	1	0

Subscriptions to the Fund should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited, and sent to Dr. H. A. Des Vœux, 14, Buckingham-gate, London, S.W.

THIRD LIST OF SUBSCRIBERS IN IRELAND.

Amount previously acknowleged ... £675 5*s.*

	£	s.	d.
Michael H. Aiken	1	1	0
Anon	0	10	0
A. W. W. Baker	2	2	0
G. D. Beggs	1	1	0
J. Brennan	0	10	0
Fenwick Carre	2	2	0
S. L. Cleland...	0	10	6
Mrs. G. Cooper	0	10	6
D. J. Coffey, P. Univ. Coll.	10	10	0
Th. Coulter	1	0	0
D. Crowly	1	0	0
J. C. T. Day	1	0	0
A. F. Dixon	2	2	0
J. A. Donaghy	0	10	0
H. H. S. Dorman	1	0	0

	£	s.	d.
G. N. Dunn	1	0	0
P. J. Dunning...	1	1	0
Mrs. John Dunville ...	3	0	0
E. P. Eustace	1	1	0
J. F. Fagan	1	1	0
A. T. Ferrall	0	10	0
L. P. J. Finegan	2	2	0
W. H. Fitzmaurice ...	0	10	0
H. B. Fleming...	3	3	0
W. J. Galbraith	1	1	0
A. S. Goff	1	1	0
J. Gordon	1	1	0
A. Greene	2	2	0
K. R. C. Hallowes	1	1	0
M. Halpenny	1	0	0
T. Hennessy	1	0	0
W. H. Howe	1	1	0
Hoyte and Son, Ph.C. ...	1	1	0
Irish Branch, British Dental Association ...	10	10	0
S. T. Irwin	2	2	0
M. W. Kelly	0	10	0
F. W. Kennedy	2	2	0
J. Kilpatrick	1	1	0
J. Laird	2	2	0
C. L. Lapper	1	1	0
Horace Law	5	5	0
J. J. Long...	1	7	0
J. W. Lougheed	1	1	0
E. Lyons	0	10	0
J. McBirney and Co. ...	1	1	0
P. MacCarthy...	3	0	0
G. MacManus	0	7	6
G. U. Macnamara	1	0	0
Mrs. W. D. Martin... ...	1	1	0
R. C. B. Maunsell	2	2	0
J. R. Middleton	1	1	0
T. U. Moffitt	1	1	0
T. K. Mulcahy...	1	1	0
C. J. O'Connor...	1	0	0
T. O'Donnell	1	1	0
F. G. O'Donohoe	1	0	0
W. D. O'Kelly...	1	1	0
J. W. Oliver	1	0	0
G. Peacocke	2	2	0
J. S. Pegum	1	0	0
Charles Pentland	1	1	0
Louis Perrin	1	0	0
Gardner Robb	3	3	0
Major J. J. Robb, I.M.S.	1	1	0
Miss L. Rowlette	0	10	0
S. Scanlan...	1	0	0
Sir Wm. J. Smyly... ...	10	10	0
Brice Smyth	3	3	0
M. Brice Smyth	2	2	0
R. Spence	0	10	6
B. H. Steede	1	1	0
W. C. Stevenson	2	2	0
A. G. Stewart	1	0	0
J. C. Sugars	1	1	0
P. D. Sullivan...	1	1	0
George Taylor...	1	1	0
Mather Thomson	1	1	0
W. H. Thompson	3	3	0
Vincent Tighe...	2	0	0
H. Todd, Ph.C.	1	0	0
J. Wallace	1	1	0
D. M. Watson, P., P.S.I.	3	3	0
Herbert Webb	1	1	0
P. Wright	0	10	0

In the second list published in THE LANCET on Dec. 19th, p. 1441, for "Edward Murphy" there should be read "Edmond Murphy."

Subscriptions to the Irish Fund should be sent to the Royal College of Physicians of Ireland addressed to Dr. T. P. C. Kirkpatrick, Registrar of the College, and Dr. C. M. Benson, secretary of the Royal College of Surgeons in Ireland, who are acting as honorary secretaries and treasurers to the Fund.

THE APPEAL FOR SURGICAL INSTRUMENTS.

The Master of the Society of Apothecaries begs to acknowledge with thanks the receipt of surgical instruments, &c., kindly contributed by the following gentlemen since the publication of the last list:—

Dr. Hugh R. Smith, South Hampstead, N.W.; Mr. J. D. Staple, Bristol; Dr. W. R. Reith, Erdington, Birmingham; and Dr. Samuel Davidson, Kelso.

THE Governor of Mauritius, in a telegram to the Secretary of State for the Colonies, received at the Colonial Office on Jan. 8th, states that six cases of plague were reported during the past week, and the number of deaths was six.

METROPOLITAN WATER BOARD AND MEDICAL ATTENDANCE.—At the last meeting of this Board, held on Jan. 8th, the works and stores committee submitted a report reminding the Board of its decision to provide gratuitous medical attendance for each workman excepted from the provisions of the National Insurance Act, 1911, and to pay each district medical officer appointed by the Board at the rate of 10s. per annum in respect of each workman placed on his panel, subject to the approval of the committee, such fee to include attendance, medicine, and the provision of all certificates and reports desired by the Board. The Board appointed 84 district medical officers, and as there was reason to be satisfied with the working of the arrangement the committee reported that they had decided to reappoint the whole of the district medical officers. One officer had resigned his appointment, and in his place Mr. Robert Capes was appointed. The reappointments, as in the first instance, were for 12 months only, as from Jan. 1st, in order to allow of the whole matter being brought automatically under annual review. The regulations governing the scheme had been confirmed by the committee subject to the amendment of Regulation 6, which had been altered to provide that a district medical officer who examined an employee and considered him unfit for duty must forward his certificate to the district engineer within 24 hours of the examination.

The War.

RETURN OF MEDICAL PRISONERS OF WAR.

IT is announced that five released medical prisoners of war have arrived this week in London from Germany viâ Holland. Three are officers of the Royal Army Medical Corps who were captured whilst tending British wounded, and the other two are civilian surgeons attached to the British Red Cross Society who were captured while tending Belgian wounded under the Belgian Red Cross. Their names are as follows: Captain C. T. Edmunds, R.A.M.C., Captain E. S. B. Hamilton, R.A.M.C., Lieutenant W. S. Danks, R.A.M.C., and Dr. L. J. Austin and Dr. A. R. Elliott, temporarily attached to the 1st Belgian Red Cross Unit. Graphic accounts of their experiences have appeared in various newspapers.

MEDICO-MILITARY PAPERS.

An interesting article on "Frost-bite" appears in another column this week from the pen of Mr. A. W. Mayo-Robson, who has had frequent opportunities of observing this condition in soldiers returned from the front. We also print communications of medico-military interest from Mr. J. Jackson Clarke, Mr. F. Newland-Pedley, and Mr. C. F. Constant.

SCOTTISH MEDICAL SERVICE EMERGENCY COMMITTEE.

A meeting of the Scottish Medical Service Emergency Committee was held on Jan. 9th in the Royal College of Physicians of Edinburgh. There were present the President of the Royal College of Physicians, the President of the Royal College of Surgeons, the Dean of the Faculty of Medicine, Aberdeen University, Dr. J. R. Hamilton (Hawick), Dr. J. R. Currie (Edinburgh), Dr. J. Adams (Glasgow), Dr. J. Stevens (Edinburgh), Dr. G. C. Anderson (Methil), and Dr. Norman Walker (Convener). Sir Donald MacAlister was present by invitation.

The committee considered a draft statement which had been prepared by the subcommittee appointed at the last meeting, and approved of it in the following terms:—

Statement by the Committee.

From information in its possession the Scottish Medical Service Emergency Committee has reason to believe that some advice on the general principles which should be followed in making arrangements for the carrying on of the practices of those members of the profession who are serving with the King's Forces would be welcome. The available supply of locum tenents is so small that those whose duty keeps them at home must be depended upon to do the work of the absentee. The Committee recognise that in many, perhaps most, cases there are special circumstances with which it is not possible to deal in a general way. There are, however, certain broad principles of equity which are generally applicable. The man who is with the forces has the stimulus of fresh and interesting work, and he has the satisfaction and honour of directly serving his country. On the other hand, he may imperil the position he has established perhaps after many years of hard work. The man who remains to do the necessary work at home has a more prosaic duty. He has to take on a large addition to work which may already be considerable, and he has to do this without the prospect of its being of any lasting benefit to him, for it is the essence of these arrangements that they are only "for the period of the war," and that the absentee when he returns shall find his practice as nearly as

possible intact. Bearing these facts in mind, and further, that although the man who is absent is receiving pay and allowances he is nevertheless bound to submit to, it may be, considerable loss of practice, the Committee suggest the following arrangements for three classes of practice.

Class 1.—Large towns where the question of mileage is not a very important consideration. Here it is suggested that an equal division of the remuneration should be agreed upon, this to apply both to private and insurance practice.

Class 2.—Towns with a considerable population but with a large amount of country work, necessarily involving the question of travelling expenses. It may be possible to ascertain these with more or less exactness, but as a general rule probably a division of all remuneration on the basis of three-eighths to the absentee and five-eighths to the man who is doing all the work and paying all the expenses is the nearest to equity.

Class 3.—Smaller centres or single-practice areas where the question of travelling expenses and consumption of time becomes still more important. (It is not desirable that a man should undertake the duties of a practice whose centre is perhaps ten miles from his own and the committee will do their utmost to provide locums in such cases. In such possibly a fractionally larger proportion should be allotted to the man who is doing the work.)

It should be noted with regard to the three classes of practice that the difference between, say, a town practice (Class 1) on the one hand, and a town and country practice (Class 2) on the other, is not entirely one of geographical situation. Practices in large cities will in general offer no difficulty. They are town practices pure and simple. For practices in towns of moderate size, however, much will depend on the character of the town. In industrial burghs many practices will suitably be classed as town practices (Class 1); while in a market town of the same population all practices will probably be of the town and country class (Class 2). In the same town again some practices will belong to Class 1 and others to Class 2. Lastly, in many small towns where the bulk of the work lies in the surrounding country the town element may be practically non-existent, and the practice would fairly be counted in the country class (Class 3). Consideration of the facts and of local conditions can alone determine the correct point of view in doubtful cases.

The foregoing considerations are thought to be applicable both to private and insurance practice, including under private practice all fees for medical attendance, operations, midwifery, and the like, and under insurance practice all capitation fees, mileage, and dispensing allowances, and other charges if any. The sum total of such amounts would be divided between absentee and deputy in the proportion of half and half, three-eighths and five-eighths, and one-quarter and three-quarters, according as the practice falls under Class 1, Class 2, or Class 3. In private practice the treatment of cash payments will be simple. As regards the rendering of accounts for work on behalf of absentees, these should be sent out by the deputy at the same time as he sends out his own, and it is suggested that they should be sent by Dr. A on behalf of Dr. B, "absent on duty with the King's Forces." The committee are confident that in insurance practice no deputy acting on behalf of a practitioner absent on war service will wittingly endeavour to secure the transfer of the absentee's patients to his own list. It is not necessary for a transfer to be made in order that attendance may be given. By the terms of the existing practitioners' agreements the position of the deputy is recognised and provision is made for his employment. In certain cases, however, insured persons on the lists of absentee doctors may themselves have already taken the initiative with a view to transfer. They may have given due notice of their desire to change their doctor. It appears that having done so they are at liberty to make a fresh choice, and that if they fail to be accepted they have the right to be assigned to a practitioner on the panel. It seems to the committee that it would be a proper course for the practitioner to whom such patients apply to accept them "in trust for the absentee," sharing the capitation and other allowances on the principles above proposed, and giving the patient the opportunity of being transferred back to his own doctor's list immediately on the latter's return from active service. It is necessary to recognise that proposed transfers may in some cases have nothing to do with the war. Such applications must be considered on their merits, and the decision will often be difficult. In any case of uncertainty the deputy will no doubt lean to generosity and accept the patient in trust for his absent colleague.

It was agreed that this statement should be sent for publication to the medical journals, and that it should be printed as a circular, copies of which can be had on application to the Convener at the Royal College of Physicians, Edinburgh. The committee expressed its satisfaction with the terms of the Director-General's circular, and the Convener was directed to convey its thanks to Sir Alfred Keogh, Director-General of the Army Medical Department. Several communications with reference to it had been received, and the committee expressed the hope that full advantage would be taken of this provision, and that even if the individual himself was not benefited by an exchange he would facilitate it in the interests of his colleagues and of the public.

Reference was made at the meeting to the Order in Council applying Part II. of the Medical Act, 1886, to Belgium, the outcome of which might be that Belgian doctors can legitimately practise in this country.

VOLUNTARY HOSPITALS AND WOUNDED SOLDIERS.

The Council of the British Hospitals Association, 14, Victoria-street, Westminster, S.W., have had under consideration the varying conditions under which the voluntary hospitals throughout Great Britain are receiving wounded soldiers for treatment. They point out that arrangements which the War Office has made with these institutions as to payment vary considerably; for instance, few, if any, of the hospitals in London have asked for any payment from the Government, whilst most of the provincial hospitals expect to be paid at rates which vary from 2s. to 4s. per patient per day. In these circumstances the Council are inviting the secretaries of voluntary hospitals to elicit the views of their committees as to whether an application should be made to the War Office to deal upon the basis of a uniform scale of payment with all the voluntary hospitals in which payment is desired. They understand that some such arrangement has been made in reference to the private hospitals provided by the British Red Cross Society and other similar organisations. The Council have also had under consideration the question as to whether an application should be made to the Inland Revenue authorities to remit the duty on rectified spirit used in hospitals in the making of tinctures, galenicals, &c. This matter has been referred to a small committee for further consideration and inquiry.

THE BRITISH RED CROSS SOCIETY.—In its summary of work accomplished during the week ending Jan. 9th the British Red Cross Society states that the number of auxiliary home hospitals accepted by the War Office to date is 675, containing beds for 18,782, including 364 beds accepted during the past week. The following additional ambulance cars have been despatched: 25 ambulances to the British Ambulance Committee (French Red Cross), 11 ambulances, 1 lorry, and 1 motor cyclist to Boulogne, 1 ambulance and 1 soup kitchen to Dunkirk, 1 ambulance to Havre, and 2 to places in England. At the Netley Red Cross Hospital there have been during the week 231 British and 239 Indian sick and wounded. Two cases of tetanus have recovered and have been removed from isolation. Two concerts have been given during the week,

and the members of the D'Oyley Carte Company playing at Southampton gave an entertainment.

The total number of cases of stores sent abroad during the week was 479; of these, 272 were despatched to Boulogne, 86 to Calais, and 67 to Havre, the balance representing small quantities sent to Dieppe, Wimereux, Dinant, and Dunkirk. Seventy hospitals in this country were supplied with 379 cases of stores. A large quantity of stores have been purchased to be sent out to Serbia and Montenegro. The hospital ship *Queen Alexandra* has been busy conveying wounded from Dunkirk to Boulogne, and is now engaged in transporting stores.

BRIGHTON MILITARY HOSPITALS: VISIT OF THE KING AND QUEEN.—Their Majesties the King and Queen paid a visit to Brighton on Saturday, Jan. 9th, and made a tour of the several military hospitals which have already been established there. Their Majesties' stay only lasted five hours in all, but in that short time they saw considerably over 2000 sick and wounded of the British and Indian Expeditionary Force, chatted with a great number of them, and imparted their sympathy and hopeful comfort. The Indians are quartered at the Royal Pavilion and at a secondary school in the town, and at the former place, noted for its Oriental architecture, although there was no formal ceremony, the King expressed to the mayor and corporation his pleasure that the Royal Pavilion had been given up for the reception of his Indian warriors, adding, "It is not only these beautiful surroundings which the Indians will appreciate, but this lovely air is certain to help considerably in building them up again." The Royal inspection of the Indian General Hospital, as the Pavilion has been named, lasted one hour. There were many very touching bedside scenes. Their Majesties were filled with pity when in some cases Colonel Niel Campbell, the chief administrator, explained (where the patients were unable to do so for themselves) their battle record and the nature of their injuries. But their Majesties' purpose was to hearten and console the wounded, and generally throughout their visit they maintained a cheerful manner, inspiring hope and a bright future on all sides. Sir Walter Lawrence, the War Office Commissioner, accompanied their Majesties during the tour, and he presented to the King and Queen Colonel Channer, Major Langston, and Major Waters, prominent members of the Indian Medical Service. Another hour was spent at the secondary school, an annexe of the Indian General Hospital, where Colonel Sweeney is in charge, and after lunching with the Hon. Sir Sidney Greville at Hove, their Majesties motored to the Second Eastern General Hospital in Dyke-road, where there are about 800 British and Belgian wounded soldiers. The administrators of the hospital, Lieutenant-Colonel Rooth, Captain Walker, and Lieutenant Ross, received the Royal visitors, and all the members of the medical staff were in attendance. The King and Queen next visited St. Mark's schools at Kemp Town and the Howard Home near by, two more military hospitals, and Mr. John Howard, the generous donor of the institution bearing his name, was presented to the King and Queen and personally thanked for a gift of such great value. Unfortunately, time did not permit of a visit being paid to the Royal Sussex County Hospital, where a good many wounded soldiers are being treated. Everywhere their Majesties went they expressed not in a mere form of words their appreciation of all that they had seen and all that was being done for their wounded soldiers, and those who accompanied their Majesties from bed to bed can testify to the King and Queen's sympathy with their soldiers, showing how real and personal is the interest they are taking in the wounded.

A MOTOR SURGICAL AND X RAY VAN.—The January issue of *Cooper's Vehicle Journal* contains a full description with coloured plate and working drawing of a combined operating theatre and X ray wagon on a 5-ton Dennis chassis for use as near as possible to actual military operations, which has been devised by Sir William Collins with the help of the staff of that periodical. The object of this collaboration was to harmonise in a practical fashion both medical and coachmaker's requirements. The reasons for selecting this particular type of chassis are given, but it is added that whatever type is chosen it should have an engine-driven lighting dynamo and lighting controls, while the suggestion is made that the theatre should be warmed by superheated steam generated by a burner suited for using petrol vapour or other fuel. The body, which is arranged to carry at least four persons besides the driver, is divided into three sections: the front part for the driver, the middle part a light-proof X ray room, 5 ft. long, separated by sliding doors from the largest compartment, which is the actual theatre, 9 ft. 6 in. in length. In setting out the theatre Mr. G. H. Colt's brochure entitled "A Portable Operation Theatre" has been followed with much advantage. So far as can be judged from studying the plans and descriptions, a very compact and workmanlike travelling theatre and X ray room has been designed. One criticism suggests itself. It is a question whether the presence of such an allurement might not cause many operations to be done under temporary conditions that might more wisely be postponed till the patient could be sent back to a more permanent establishment. That, however, is hardly a criticism of the van itself, and there will always be a residuum of cases in which promptitude in operating will outweigh all considerations tending towards postponement.

Surgeon-General Sir Arthur Sloggett, K.C.B., Director-General, Army Medical Service, Overseas, accompanied by a staff officer, recently inspected H.S.H. the Prince of Monaco's model convalescent home at Monte Carlo for sick and wounded officers of British nationality. Several patients have arrived at the home, which is in full working order.

THE MEDICAL LITERATURE OF WAR.—A correspondent writes:—"Medical, nursing, and ambulance work in modern warfare has a literature of its own, which is swollen considerably after each campaign. At least 25 volumes have been published relating to this aspect of the South African War; they range from official reports and hospital records to the memoranda of individual experiences. This considerable list, however, is far outdone by the accumulation of medical literature which resulted from the war between France and Prussia in 1870 and 1871. Within 12 months of the cessation of hostilities more than 30 volumes containing in one form or another a medical history of the war had been published in the two lately belligerent countries. The complete bibliography of the war, which itself fills a volume, shows that some 45 works in German and some 30 in French have been written exclusively around the experiences of the surgeons with the respective armies, the equipment and routine of the field hospitals, and the medical and ambulance service in the siege of Paris. The works range from brochures, priced at a franc or two, or a few marks, up to voluminous and expensive treatises, these latter more especially from German pens. Even in the 'eighties' books on the subject were still coming at intervals from the French and German presses, and it was not until 1886 that there appeared the last of the eight volumes of the 'Sanitäts-Bericht über die Deutschen Heere im Kriege gegen Frankreich' from the Prussian War Department. The French contributions are lighter, but generally they are more intimate and vivacious. 'Le Livret du Docteur,' by Dr. A. Flamarion, Chevalier of the Legion of Honour, for instance, is really a loosely strung diary of the author's experiences from Sedan to Paris, and while he spares us nothing in his description of the horrible and the bizarre, he lightens the narrative with touches of gaiety. The principal English contribution to the medical literature of the Franco-Prussian War was in the form of the notes and recollections of Sir William MacCormac, which were published also in French and German. In the United States the medical literature of war seems to be much slighter in character than in Europe. Doubtless there were many ephemeral publications of the kind issued immediately after the Civil War, but a study of the list of printed books in the United States in 1912 only brought to light half a dozen works which recorded the nursing and surgical experiences of the war between North and South; while only one work, apparently, is extant dealing with this aspect of the Spanish-American struggle."

NEWCASTLE PRACTITIONERS' WAR GIFT: PRESENTATION OF A MOTOR AMBULANCE BY NEWCASTLE MEDICAL MEN.—On Jan. 8th at the Royal Victoria Infirmary, Newcastle-on-Tyne, a motor ambulance purchased by the medical men of the locality was formally presented to the First Northern General Hospital for service either locally or

abroad during the war. The car is of the British Red Cross standard dimensions and was built entirely by Messrs. Argylls, Limited, at Alexandria, Scotland. The chassis is one of that firm's 15–30 h.p. models, with sleeve valve engine and four-wheel diagonal braking system. The tyres are extra large, and these, with a silent rear axle worm, convey smooth running powers, while the comfort of the passengers is further ensured by rear three-quarter elliptic springs and the use of Houdaille shock absorbers, which are attached to both front and rear axles. The body consists of a wood frame, with canvas detachable curtains, and the ambulance accommodates four stretchers running on guides. The body is so arranged that it can easily be made to accommodate comfortably 12 convalescents. An electric roof-lamp facilitates night work. The executive committee consisted of Professor Rutherford Morison (chairman), Dr. James Hudson (vice-chairman), Mr. David Ranken (honorary secretary), Sir George Hare Philipson, Sir Thomas Oliver, Dr. David Drummond, Dr. W. L. Ruxton, Dr. Ranken Lyle, Dr. S. Whillis, Dr. G. H. Hume, sen., Mr. F. Page, Dr. C. J. Gibb, Dr. E. F. Pratt, Dr. R. Dagger, Dr. J. D. Wardale, Dr. Russell, Dr. W. S. Fraser, Dr. A. C. Burnell, Dr. James Don, Dr. Ethel Williams, Dr. J. T. Dunlop, Dr. J. J. Campbell, Dr. A. Campbell, and Dr. H. Ll. Rutter. The subscribers numbered 117. In presenting the ambulance Professor Morison said that great pains had been taken in the selection of the car after a most careful investigation of the conditions which such a car would have to meet. Colonel Gowans, commanding the First Northern General Hospital, in accepting the car, thanked the subscribers and paid a tribute to the judgment of the committee on their choice of a car, and hoped that at the end of the war it would be returned little the worse for wear for the use of the civilian sick of the district.

THE DUCHESS OF WESTMINSTER'S HOSPITAL.—The following is an extract from a letter received by a correspondent from one serving in the Duchess of Westminster's War Hospital:—"Le Touquet par Etaples, well known for its first-rate golf links, will in future be notable for the excellent war hospital which was organised shortly after the commencement of hostilities. The patients are at the Casino, which is an ideal place for a hospital, and the doctors and nurses are in the Hôtel des Anglais; the use of both buildings has been given free. The staff consists of a military commandant, 4 surgeons, 2 physicians, an anæsthetist, an X ray officer, 4 dressers, 30 nurses, and 30 orderlies. There are 270 beds; up to the end of 1914 about 800 patients had been admitted, chiefly cases of shell and bullet wounds and so-called 'frost-bite,' which is a misnomer. These are a general inflammation of the feet due to long-continued standing in wet boots in the rain-sodden trenches, producing discolouration and associated with anæsthesia or hyperæsthesia. The patients take a long time to recover; one of them was so bad that both feet were gangrenous with a definite line of demarcation, and were amputated. He was a German prisoner. There have been three cases of gas gangrene, one of whom recovered. By the irony of fate he was a German. We have had three cases of tetanus, two of whom died. With regard to antitetanic serum, there seems little evidence as to its value, but everyone agrees that it ought to be given, as it does no harm; but with typhoid the case is very different. At Wimereux 80 per cent. of the cases had not been inoculated; of the remaining 20 per cent. nearly all were infected immediately after the inoculation—i.e., during the negative phase. Two things forcibly strike me here. First, the remarkable recoveries considering the horribly septic condition of many of the wounds. There is no doubt that the more conservative one's surgery the more successful the results. The number of aseptic cases is very small. Secondly, the happy way and cheerful endurance with which the men face their sufferings. I have not heard a complaint or a groan from a patient since I have been here. There are 'grousers' in almost every community, but, thank heaven, they are not to be found here."

THE DRUG HABIT AND MOBILISATION IN FRANCE.—Our Paris Correspondent writes: "Dr. Marcel Briand has lately been investigating the behaviour of the morphine takers in the French army. Generally speaking, while a few have not broken away from their demoralising habit, many, being unable to obtain the drug, have perforce been compelled to become demorphinised and have thus been cured, but not without considerable suffering. The subjection to army discipline has also had a bracing moral effect, while in civil life the morphinomaniacs seek one another out and encourage each other in their vice. There are at least two such now in the army who, coming from the same environment and locality, where they frequently associated in their habits and in their search for supplies of the drug, on mobilisation, the one as an officer, the other in the ranks in the same regiment, now deceive one another as to their state by each pretending to have been cured long since, and while they still continue taking injections secretly, are rapidly lessening the dose to escape as quickly as possible from their tyrannical need, which becomes daily more hateful to them. Their regiment has not yet been under fire, but there is every reason to hope that when this occurs the two men will be quite capable of adequately discharging their duty, which they could not have done a few weeks ago."

ULSTER VOLUNTEER FORCE HOSPITAL.—This hospital, which has been established in the Exhibition Hall, Belfast (granted by the Belfast City Corporation), for the reception of wounded soldiers and sailors, was opened on Jan. 8th by Lady Carson. The Exhibition Hall has been transformed into a hospital with 80 beds, and 20 more beds have been provided at the Samaritan Hospital for Women (which for some time has been closed), where it is proposed to treat the more serious cases. A neighbouring house (No. 1, College Park East) has been generously placed at the disposal of the committee for use as a nurses' home. The hospital is being lent to the War Office by the Ulster Volunteer Force, who will retain the ownership and be able to use it in whatever way they may deem proper after the war has been brought to a termination. A large medical and nursing staff have been appointed.

M.B. DEGREE EXAMINATION AT BELFAST.—A special examination for the M.B. degree was held in connexion with the Queen's University of Belfast last week, when 21 candidates were admitted to the degree. A large number of these propose entering the Army Medical Service. The degrees were conferred on Monday, Jan. 11th.

Obituary.

SIR ROBERT MICHAEL SIMON, B.A., M.D. CANTAB., M.D. BIRM., F.R.C.P. LOND.,

CONSULTING PHYSICIAN TO THE GENERAL HOSPITAL, BIRMINGHAM; PROFESSOR OF THERAPEUTICS IN THE UNIVERSITY OF BIRMINGHAM.

WITHIN a short period the medical profession of Birmingham has mourned the loss by death of three of its leading members, and some weeks ago a further loss was sustained by the death of Sir Robert Simon after a short illness.

Born in 1850 Sir Robert Simon was a native of Nottingham. He entered Caius College, Cambridge, and graduated M.B. in 1876 and M.D. two years later. He studied medicine at Guy's Hospital and in Berlin. At first he settled in Manchester, where for three years he was honorary physician to the St. Mary's Hospital for Women and Children. In 1879 he became a Member of the Royal College of Physicians and was appointed assistant physician to the General Hospital, Birmingham, taking the place of the late Dr. G. A. Gibson, who went to Edinburgh. On the retirement of Sir Walter Foster (afterwards Lord Ilkeston) in 1891 Sir Robert Simon was elected honorary physician to the hospital, which position he held until April, 1914. His distinguished services to this institution rendered during 35 years were recognised last October, when an illuminated album was presented to him and a diamond tiara to Lady Simon. An excellent portrait of Sir Robert Simon was at the same time presented

to be hung in the board room of the General Hospital. In the University of Birmingham he held for a short time the chair of Forensic Medicine, and for the last three years he was Professor of Therapeutics. Besides the General Hospital appointment he was physician to the General Dispensary, consulting physician to the Dental Hospital, the Tewkesbury Hospital, the Nuneaton Hospital, Lichfield Cottage Hospital, and the Sutton Coldfield Dispensary. He served a term as examiner in medicine at the University of Cambridge and as examiner in clinical medicine at the University of Birmingham. He had also held the offices of President of the Birmingham Branch of the British Medical Association and of the Birmingham Medical Benevolent Society. In 1910 he received the honour of knighthood in recognition of his professional position and of the services rendered to the city of Birmingham. For 15 years he was a magistrate of the county of Warwick, and more recently had been a justice of the peace for Birmingham. His contributions to medical literature were few, the most important being the chapter on the diseases of workers in brass and copper for Oliver's "Dangerous Trades." An earlier paper on "Brass-founders' Ague" had appeared in 1888. He was the author of "Lectures on the Treatment of Common Diseases of the Skin," based on his Ingleby lectures. Two papers on "Cardiolysis" were published recently.

Sir Robert Simon was a man of very considerable ability and possessed unusual clinical skill, which had gained for him a high reputation as a teacher and a large consulting practice in the Midlands. As a physician he possessed broad and philosophic views of disease, and had the power of seizing at once the essential features of a case. He was essentially a friendly man and easily won the confidence of his patients. He was a good-tempered colleague, considerate and helpful to his juniors. The post of his house physician was much sought after, and his old residents would acknowledge how much they owe to his clinical experience and skill, to his friendly banter, and to the sense of responsibility and initiative which he tried to inculcate in them. He had a great aptitude for games of skill; few were his equals at chess or bridge, and he was a good golfer. Three years ago he had severe Menière's disease, which he faced with great courage. Since then his health had not been very good, but it was hoped that the greater leisure resulting from his retirement from active hospital work would allow him to enjoy life for many years, and his death following a severe attack of influenza was a great shock to all his friends.

Sir Robert Simon married in 1887 Emily Maud, a daughter of the late Mr. W. H. Willans, of London and Seaton, who survives him with her daughter.

ERNEST WILSON STOKER, F.R.C.S. IREL.,

SURGEON TO OUT-PATIENTS, ST. PAUL'S HOSPITAL, RED LION-SQUARE, W.C.

Dr. Wilson Stoker belonged to the well-known Irish family which has produced so many members of the medical profession. His father and grandfather were medical practitioners, and three out of four of his brothers follow the same calling. He received his medical education at the Royal College of Surgeons in Ireland, where he graduated in 1888, and subsequently took the Fellowship. He went through courses at Berlin and Vienna under Bilroth and Pollitzer, and travelled extensively when a young man in various parts of the world. He then came to London, and after holding the post of house surgeon at the Mount Vernon Hospital, settled in practice 17 years ago. He recently took the house of his cousin, Mr. George Stoker, C.M.G., in Hertford-street, Mayfair, and attained considerable success in practice. A personal friend writes: "He loved his profession, and refused, notwithstanding his failing health from diabetes, to take a long rest, and died in harness, as he always wished to do, after a few hours' illness from pneumonia. The strain of the war, bringing attendance upon Red Cross hospitals and work to be done for absent friends serving at the Front, in addition to his personal work, proved to be too much for his strength. He had been a prominent athlete, having played Rugby football for Ireland in 1888–90, besides being a well-known tennis player and a keen shot."

EDWARD IRWIN SCOTT, M.D. ST. AND., L.R.C.S. IREL., L.R.C.P. IREL.

Dr. Edward Irwin Scott has died at Brighton from angina pectoris at the age of 68 years. He was noted for his great thoughtfulness and kindness to all with whom he came in contact, rich and poor alike. Dr. Scott was formerly a member of the Hove town council, and was interested in local philanthropic societies as well as the National Society for the Prevention of Cruelty to Children and the Charity Organisation Society. He was medical officer of the Brighton and Hove Dispensary for 25 years, and was ex-president of the Irish Medical Schools and Graduates Association. He formerly practised at Swatow.

The funeral service was held at All Saints' Church, Hove, when there was a large congregation of friends and patients.

Medical News.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At the First Professional Examination of the Conjoint Board held on Jan. 5th, 6th, 7th, and 8th the following candidates were approved in the subjects indicated:—

Chemistry and Physics.—Fanzi Fareed Abdullah, St. Mary's Hospital; William George Barnard, London Hospital; Percival Charles Collyns, St. Bartholomew's Hospital; Ivor Joseph Corbett, Plymouth Science, Art, and Technical School; William Davies, University College, Cardiff; Frank Swinburne Drewe, M.A. Oxon., St. Thomas's Hospital; Chapple Gill-Carey, Guy's Hospital; Boris Abram Moishovich Gordon, South-Western Polytechnic and London Hospital; Frank Eric Harger, St. Bartholomew's Hospital; Norman Howard, Liverpool Technical School; John Stephen Moore, St. Thomas's Hospital; Adolphe Gladstone Millott Severn, Guy's Hospital; Yousif Ahmed Sunbul, Polytechnic Institute; Douglas Darrand Christian Thomson, London Hospital; and Jacob Eliza van der Merwe, Guy's Hospital.

Chemistry.—Frank Edward Edwards, Manchester University; Mamtaz Wali Mahomed Hassanally, King's College; Henry Alfred Connor Kite, Sheffield University; Clement Nicory and Ernest Algernon Sparks, St. Thomas's Hospital; and Alfred George Sykes, Sheffield University.

Physics.—Laurence Morrice Calvert, Cambridge University and St. Bartholomew's Hospital; Alfred Joseph Chiappa, Middlesex Hospital; Mohamed Ahmed El Dardiri, King's College; Arthur James Fenn, Birkbeck College; Alfred Foster, St. Bartholomew's Hospital; Wahba Girgis, St. Mary's Hospital; Kenneth Glaisby, Uppingham School; David Joseph Heritage Jones, St. Mary's Hospital; George Murphy, Birmingham University; Akinlawon Babatunde Olumuyiwa, St. Mary's Hospital; and Gladys Mary Thurlow Williams, University College, Cardiff.

Biology.—Yenny Abdel-Messiah, B.A., King's College; Fanzi Fareed Abdullah, St. Mary's Hospital; Jose Basileo Acuna, Guy's Hospital; Frederick Thomas Allen, St. Thomas's Hospital; George Wilfred Almeyda and William George Barnard, London Hospital; Charles Reginald Cade, Guy's Hospital; Alfred Joseph Chiappa, Middlesex Hospital; William Davies, University College, Cardiff; Arthur James Fenn, Birkbeck College; Edgar Thomas Flood, St. Mary's Hospital; Chapple Gill

Carey, Guy's Hospital; Wahba Girgis, St. Mary's Hospital; Boris Abram Moishovich Gordon, South-Western Polytechnic and London Hospital; Denis Paul Guilfoyle, St. Bartholomew's Hospital; William Rufus George Harris, London Hospital; Kenneth Charles Johnston Jones, St. Bartholomew's Hospital and Bedford School; John Joseph Miles MacDonnell, St. Thomas's Hospital; Charles Moffatt, Guy's Hospital; George Murphy, Birmingham University; Elizabeth O'Flynn, School of Medicine for Women; Arthur Arnold Osman and Adolphe Gladstone Millott Severn, Guy's Hospital; Yousif Ahmed Sunbul, King's College; Douglas Durrand Christian Thomson, London Hospital; Jacob Eliza van der Merwe and George William Wheldon, Guy's Hospital; and Frederick William Widgery, Royal Albert Memorial College.

At the Second Professional Examination in Anatomy and Physiology held on Jan. 7th, 8th, and 11th 51 candidates presented themselves, of whom 35 were approved and 16 were referred. The following is a list of the successful candidates:—

Eric Burn Andreae, London Hospital; Henry Hamilton Bailey, Durham University and London Hospital; James Reid Banks, University College; James Allan Berry, Guy's Hospital and Durham University; Kasargod Somanath Bhat, B.A. Madras, Madras University and St. Bartholomew's Hospital; Francis Caldecott and Oliver St. Leger Campion, Guy's Hospital; Milton Carrasco, Grant Medical College, Bombay; Hyman Maurice Cohen, M.D. Baltimore, Baltimore and Liverpool Universities; Bernard Stanley Collings and Thomas Morlay Cunnington, University College; Henry Andrew Frokjar, Melbourne University and University College; Lawrence Gill, Guy's Hospital; Edwin Gabriel Harris and John Hollings, London Hospital; John Hope, Manchester University; Joseph Christopher Campbell Howe, Guy's Hospital; John Wilkinson Davis Hyde, University College; Ivy Keess, Grant Medical College, Bombay; Mohamed Elwan Abdel Latif, Cairo; Kenneth Alexander Ingleby Mackenzie, B.A. Oxon., Oxford University and St. Bartholomew's Hospital; Puthiyaveethil Narayana Menon, University College; Hugh Morris-Jones, Glasgow and Liverpool Universities; Pirosha Dinsha Motivala, Grant Medical College, Bombay; William Percival Nelson, Birmingham University; Alice O'Reilly, L.M.S. Calcutta, Calcutta University; Geraint Arthur Pennant, University College, Cardiff, and Guy's Hospital; Frank Neon Reynolds and Alan Harvey Richardson, St. Thomas's Hospital; Edwin John Gostwycke Sargent, St. Mary's Hospital; Basil Lyndon Skeggs, St. Bartholomew's Hospital; Neville Hardcastle Smith, B.A. Cantab., Cambridge and Liverpool Universities; Iqbal Hosain Syed, Grant Medical College, Bombay; Arthur Stewart Westmorland, St. Mary's Hospital; and Shebseli Yahilevitz, London Hospital.

CENTENARIANS.—Mrs. Mary McCann, who retained her faculties till she died, passed away on Jan. 9th in the Roman Catholic Home, Newry, on the 100th anniversary of her birthday.—Mrs. Lambert, of Edmonton, recently celebrated the 101st anniversary of her birthday.

THE SUPPLY OF THYMOL.—A shortage of this useful and powerful antiseptic has arisen owing to the fact that most of it was prepared from the raw material (ajowan seeds) by German makers. These seeds are supplied for the most part from India, and we learn that the Imperial Institute authorities are taking steps to bring British manufacturers into communication with the Indian exporters of the seed with the view of extracting the oil in this country.

THE SALE OF LAUDANUM.—At the January meeting of the Council of the Pharmaceutical Society the following was adopted:—

That the policy to be advocated by the Council in regard to the sale of laudanum should be that when "laudanum" is asked for the 1914 preparation should be supplied and the poison book signed; but where the 1898 preparation is demanded care should be taken to label it accordingly, and the attention of the purchaser should be called to the fact that it is the 1898 preparation.

RAINFALL IN THE NORTH OF IRELAND.—December, 1914, will long be remembered as the wettest month in Ulster for many years, while during it there was also an extraordinary prevalence of high winds, as well as a low average temperature. Thus, at the famous golfing centre, Newcastle, co. Down, there were 16 days on which rain fell, and the total amount was 7·44 inches. At Warrenpoint rain fell on 23 days in December to the extent of 8·93 inches, as against 2·63 inches in December, 1913. In the same district the total rainfall for 1914 was 37·44 inches, as against 41·11 inches in 1913. In Newcastle the total rainfall for last year was 38·94 inches. At Seaforde, co. Down, the rainfall during 1914 was 38·95 inches, as against 40·25 in 1913; at Letterkenny, co. Donegal, it was 46·33 inches; at Markee, co. Sligo, it was 46·58 inches; while at Carna, Connemara, in the west of Ireland, it was 49·10 inches. At Cashel, Tipperary, there were 235 days with rain.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Meeting of the House of Lords.

THE House of Lords met on three days last week. Several matters arising out of the war were discussed. An adjournment was then made until Feb. 2nd, on which date the House of Commons reassembles.

HOUSE OF LORDS.

THURSDAY, JAN. 7TH.

Gifts of Motor Ambulances.

Lord BALFOUR OF BURLEIGH asked His Majesty's Government whether it was the fact that with the consent of the War Office some motor ambulances had been provided by private benefaction for special brigades through the British Red Cross Association; whether, on such cars being landed in France, they had been taken possession of by the Army Service Corps and devoted to the general service of the Royal Army Medical Corps; and, if so, whether this course had the sanction and approval of the War Office. His lordship went on to say that the facts as given to him from a private source were these. Early in the war there was a great need for ambulance cars at the seat of military operations for the purpose of taking the wounded back to the base hospitals with as much speed as possible. The fact that the demand exceeded the supply was one on which he did not care to throw stress. He was told that this becoming known to the friends of some of the regiments concerned they got up subscriptions for providing ambulance cars for the special units in which they were interested. He was informed by Mr. Walter Long, whose son was in the Scots Greys, that the War Office was approached to get its consent that such a procedure in regard to this particular regiment should be adopted. The War Office stated that individual units could not be given this privilege, but it would give its consent if the car was sent for the service of a particular brigade. Accordingly the friends of the Scots Greys, the 12th Lancers, and the 20th Hussars, which made up one cavalry brigade, did provide ambulance motors for the service of that brigade. He was told that in no single case had a car reached its destination. He was informed that every condition laid down by the War Office had been complied with, and the cars were sent out to the British Red Cross Association. He was not speaking on behalf of that organisation, but on behalf of those who supplied the cars. Were the statements he had just made correct? If so, was it fair that the property of private persons, subscribed for under the sanction of the War Office for a definite purpose, should be taken from them and applied to other purposes?

The LORD CHANCELLOR replied that he had looked into the matter. A considerable number of motor ambulances had been provided by private benefactors, and in a great number of instances the donors had stipulated that the ambulance in question should be given to some particular unit or brigade. The answer to these stipulations had invariably been that so far as possible the donors' wishes would be carried out, but it must be distinctly understood that any such gifts could only be accepted on the condition that they were available for the general service of the army. Those ambulances which had been given for work with the Expeditionary Force had been so dispatched. It was obvious, however, that the circumstances and difficulties of maintaining an army in the field made the special earmarking of certain vehicles to certain units only a practical impossibility. A vehicle requiring only slight repairs must necessarily be replaced by an efficient one, and the damaged one when repaired must necessarily go into the general pool available for replacement wherever required. It came to this: that whilst an effort had been made to carry out the wishes of the donors the circumstances of the army made it impossible to carry them out in certain instances.

Lord BALFOUR OF BURLEIGH remarked that the names of the units were painted on the cars concerned, and no communication had been made to any of the donors that the cars had been taken for the service of the Army Medical Corps. He was informed that one of the cars had not been paid for, and the donor did not intend to do so until he got compensation.

Inoculation against Typhoid.

Lord TENTERDEN drew attention to the inoculation in His Majesty's Forces against typhoid; and asked His Majesty's Government for information as to whether inoculation was compulsory, and whether soldiers were involved in any penalties or disabilities if they refused to submit to inoculation. He said that pressure was being put on soldiers to be

inoculated, even in cases in which they entertained conscientious objections to the operation. Many cases had been brought to his notice where soldiers who refused had had their Christmas leave stopped. He had seen many letters from soldiers in which they protested against the exercise of this pressure. It was perfectly evident in spite of all official assurances in Parliament that inoculation was being made practically as compulsory as it could be.

The LORD CHANCELLOR replied that inoculation against enterical typhoid was not compulsory for any soldier. There were special dangers at the front to men who were not inoculated, and the medical authorities were convinced of the benefits of inoculation. Every effort was made to persuade men to be inoculated. The only circular issued on the subject was that dated Oct. 4th, 1914, and in it it was pointed out that this disease was a great danger on active service and that it was the duty of soldiers to guard against it; and if they did not do so they risked their chance of seeing active service because men who had adopted this precaution might be selected in their place. It came to this: that the medical authorities and the highest authorities were convinced that this inoculation was the very highest protection against enteric fever.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BARNES, HELEN P., M.B., B.S. Lond., has been appointed Resident Medical Officer at the Wolverhampton and Staffordshire General Hospital.

HUDSON, ARTHUR CYRIL, M.D., B.C. Cantab., F.R.C.S. Eng., has been appointed Ophthalmic Surgeon in Charge of Out-patients at St. Thomas's Hospital.

MACKAY, HELEN M. M., M.B., B.S. Lond., has been appointed House Surgeon at the Wolverhampton and Staffordshire General Hospital.

MALLET, REFNA, M.R.C.S., L.R.C.P., has been appointed House Surgeon at the Wolverhampton and Staffordshire General Hospital.

MITCHELL, A. PHILIP, M.D., Ch.M. Edin., F.R.C.S. Edin., has been appointed Temporary Assistant Surgeon at the Royal Hospital for Sick Children, Edinburgh.

MORISON, D., M.D. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Tobermory District of the county of Argyll.

PHILLIPS, LLEWELLYN POWELL, M.D. Cantab., F.R.C.P. Lond., F.R.C.S. Eng., has been appointed Physician-in-Ordinary to S.M. the Sultan of Egypt.

REES, J. H., M.D. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Penarth District of the county of Glamorgan.

WARBURTON, GILBERT B., M.B., Ch.M. Vict., F.R.C.S. Eng., has been appointed Temporary Honorary Surgeon to Ancoats Hospital, Manchester.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ASHTON-UNDER-LYNE UNION WORKHOUSE.—Resident Assistant Medical Officer. Salary £150 per annum, with rations, laundry, and residence.

BARNSLEY, BECKETT HOSPITAL AND DISPENSARY.—Second House Surgeon, unmarried. Salary £120 per annum, with apartments, board, and laundry.

BARNSTAPLE, NORTH DEVON INFIRMARY.—Female House Surgeon. Salary £100 per annum, with board, residence, and laundry.

BARRY EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary £300 per annum.

BARRY URBAN DISTRICT COUNCIL ACCIDENT AND SURGICAL HOSPITAL.—House Surgeon. Salary £250 per annum.

BETHNAL GREEN INFIRMARY, Cambridge-road, N.E.—Assistant Medical Officer. Salary at rate of £200 per annum, with apartments, board, and washing.

BIRKENHEAD BOROUGH HOSPITAL.—Junior House Surgeon. Salary £100 per annum, with board and laundry.

BIRMINGHAM AND MIDLAND EYE HOSPITAL, Church-street.—Senior and Junior House Surgeons. Salary £110 and £100 per annum respectively, with residence and board, &c.

BIRMINGHAM AND MIDLAND HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, Bath Row.—Physician to Out-patients.

BIRMINGHAM CITY MENTAL HOSPITAL, Rubery-hill.—Female Junior Assistant Medical Officer. Salary £200 per annum, with apartments, board, laundry, &c.

BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer, unmarried. Salary £240 per annum, with apartments, fire, lights, and attendance.

BIRMINGHAM UNION.—DUDLEY-ROAD INFIRMARY: Third Assistant Medical Officer. Salary at rate of £170 per annum. Fourth Assistant Medical Officer. Salary at rate of £160 per annum. SELLY OAK INFIRMARY: Assistant Medical Officer. Salary at rate of £130 per annum. All with apartments, rations, laundry, and attendance.

BOLTON INFIRMARY AND DISPENSARY.—Junior House Surgeon and Third House Surgeon. Salary £150 and £130 per annum respectively, with apartments, board, and attendance.

BRADFORD ROYAL INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with board, residence, and washing.

BRADFORD, ST. LUKE'S HOSPITAL AND UNION HOUSE.—Assistant Resident Medical Officer, unmarried. Salary £150 per annum, with rations, apartments, and washing.

BRIDGWATER HOSPITAL.—House Surgeon, unmarried. Salary at rate of £125 per annum, with board, lodging, and washing.

BRISTOL, COSSHAM MEMORIAL HOSPITAL, Kingswood.—House Surgeon. Salary £120 per annum, with board, lodging, and washing.

BRISTOL EYE HOSPITAL.—House Surgeon. Salary £100 per annum, with board, residence, and laundry.

BRISTOL GENERAL HOSPITAL.—Resident Obstetric Officer for six months. Salary at rate of £120 per annum, with board, residence, &c.

BURY INFIRMARY.—Junior House Surgeon. Salary £150 per annum, with board, residence, and washing.

CANTERBURY, KENT AND CANTERBURY HOSPITAL.—Senior House Surgeon and Junior House Surgeon, unmarried. Salary £100 and £90 per annum respectively, with board, lodging, and washing.

CANTERBURY, KENT COUNTY ASYLUM, Chartham.—Third Junior Assistant Medical Officer. Salary £250 per annum, with quarters, board, washing, &c.

CAPE TOWN, SOMERSET HOSPITAL.—Two Assistant Medical Officers, unmarried. Salary £200 per annum, with rations and quarters.

CARDIFF, KING EDWARD VII.'s HOSPITAL.—Female House Surgeon for Ophthalmic and Ear and Throat Departments. Salary £140 per annum, with board, laundry, and residence.

CITY OF WESTMINSTER UNION INFIRMARY, Fulham-road, S.W.—Second Assistant Medical Officer and Third Assistant Medical Officer. Salary £160 and £140 per annum respectively, with board, residence, and washing.

COVENTRY, COVENTRY AND WARWICKSHIRE HOSPITAL.—House Physician. Salary £110 per annum, with rooms, board, washing, and attendance.

CROYDON GENERAL HOSPITAL.—Senior House Surgeon. Salary £105 per annum, with residence, board, and laundry.

DOUGLAS, ISLE OF MAN, NOBLE'S HOSPITAL.—Resident House Surgeon, unmarried. Salary £150 per annum, with board and laundry.

DUDLEY, GUEST HOSPITAL.—Assistant House Surgeon for six months. Salary £100 per annum, with board, residence, and washing.

ECCLES AND PATRICROFT HOSPITAL.—House Surgeon, unmarried. Salary £70 per annum, with board, lodging, and washing.

EXETER CITY ASYLUM.—Assistant Medical Superintendent. Salary £250 per annum, with apartments, board, laundry, &c.

GLASGOW, GARTLOCH MENTAL HOSPITAL.—Assistant Medical Officer. Salary £200 per annum, with board, lodging, and laundry.

GLOUCESTER, GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board, residence, and washing.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway, N.—House Physician for six months. Salary at rate of £60 per annum, with board, lodging, residence, and laundry.

GREAT YARMOUTH HOSPITAL.—House Surgeon, unmarried. Salary £200 per annum, with board, lodging, and washing.

GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—House Surgeon. Salary £150 per annum, with board, residence, and laundry.

HACKNEY UNION INFIRMARY, High-street, Homerton, N.E.—Junior Assistant Medical Officer. Salary £200 per annum, with rations, apartments, and attendance.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—House Physician for six months. Salary 30 guineas.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—Two House Surgeons, unmarried, for six months. Salary £30, with board, residence, &c.

HULL CITY ASYLUM.—Junior Assistant Medical Officer. Salary £200 per annum, with board, lodging, and washing.

HULL, VICTORIA CHILDREN'S HOSPITAL, Park-street.—Female House Surgeon and Female Assistant House Surgeon. Salary £60 and £50 per annum respectively, with board and laundry.

LEEDS PUBLIC DISPENSARY.—Female Resident Medical Officer. Salary £130 per annum, with board, residence, and laundry.

LEICESTER BOROUGH SANATORIUM AND TUBERCULOSIS DISPENSARY.—Assistant Medical Officer. Salary £300 per annum.

LEICESTERSHIRE EDUCATION COMMITTEE.—Temporary Assistant School Medical Officer. Salary at rate of £300 per annum.

LEWES, EAST SUSSEX COUNTY COUNCIL EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary £320 per annum.

LIVERPOOL, BROWNLOW HILL INSTITUTION.—Resident Assistant Medical Officers. Salary £280 per annum, with apartments and usual resident allowances.

LIVERPOOL, CITY OF.—Female Assistant Medical Officer. Salary £350 per annum.

LIVERPOOL, DAVID LEWIS NORTHERN HOSPITAL.—House Physician and House Surgeon for six months. Salary at rate of £60 per annum each, with board, residence, and laundry.

LIVERPOOL STANLEY HOSPITAL.—House Surgeons and Physicians.

LONDON HOMŒOPATHIC HOSPITAL, Great Ormond-street and Queen-square, Bloomsbury, W.C.—Surgeon for Diseases of the Eye. Also Assistant Physician.

LONDON TEMPERANCE HOSPITAL, Hampstead-road, N.W.—Assistant House Surgeon for six months. Salary at rate of 100 guineas per annum.

MANCHESTER CORPORATION.—Two Assistant Tuberculosis Medical Officers. Salary £350 each per annum.

MANCHESTER, COUNTY ASYLUM, Prestwich.—Assistant Medical Officer, unmarried. Salary £250 per annum, with board, apartments, attendance, and washing.

MANCHESTER ROYAL EYE HOSPITAL.—Junior House Surgeon. Salary £30 per annum, with residence, board, and washing.

METROPOLITAN HOSPITAL, Kingsland-road, N.E.—Two Assistant House Surgeons for six months. Salary at rate of £40 per annum, with board and washing.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.—Surgeon Laryngologist.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen square, Bloomsbury, W.C.—Temporary Junior House Physician. Salary £100 per annum, with board and residence.

NEWPORT (MON.), ROYAL GWENT HOSPITAL.—Resident Medical Officer. Salary for first six months at rate of £100 per annum, second six months £125, and third six months £150, with board, residence, and laundry.

NOTTINGHAM GENERAL HOSPITAL.—Senior House Physician. Salary £120 per annum, with board, residence, and laundry.

PRESTON ROYAL INFIRMARY.—Assistant Resident Medical and Surgical Officer. Salary £120 per annum, with board, residence, and laundry.

PUTNEY HOSPITAL, Putney Common, S.W.—Resident Medical Officer. Salary £150 per annum, with residence, board, and laundry.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—Assistant Physician. Also House Surgeon for six months. Salary £80 per annum, with board, residence, and washing.

RHONDDA URBAN DISTRICT COUNCIL.—Two Temporary Assistant Medical Officers of Health and School Medical Officers. Salary £350 and £300 per annum respectively.

ROUSAY AND EGILSHAY, PARISH OF.—Resident Medical Officer. Salary £71 per annum, with free house (partly furnished) and garden.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—Election to the Court of Examiners.

ROYAL NATIONAL ORTHOPÆDIC HOSPITAL, 234, Great Portland-street, W.—Resident House Surgeon. Salary £100 per annum, with board, washing, &c. Also Honorary Anæsthetist. Salary £21 per annum.

ST. MARY'S HOSPITAL, Paddington, W.—Resident Assistant Anæsthetist for six months. Salary at rate of £100 per annum, with board and residence.

ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, Plaistow, E.—Resident Medical Officer. Salary at rate of £90 per annum, with board, residence, and laundry.

SALFORD ROYAL HOSPITAL.—Resident Surgical Officer and Casualty House Surgeon for six months. Salary at rate of £120 and £100 per annum respectively, with board and residence.

SALISBURY INFIRMARY.—Assistant House Surgeon, unmarried. Salary £75 per annum, with apartments, board, lodging, and washing.

SALOP COUNTY COUNCIL.—Temporary Tuberculosis Officer. Salary 7 guineas a week.

SHEFFIELD CITY HOSPITALS (INFECTIOUS DISEASES AND TUBERCULOSIS).—Assistant Medical Officer. Salary £180 per annum, with board, lodging, and washing.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Physician, unmarried. Salary £80 per annum, with board, lodging, and washing

SHEFFIELD ROYAL INFIRMARY.—House Surgeon and Assistant House Physician. Salary £100 per annum, with board and residence.

SIDLAW SANATORIUM.—Resident Medical Officer. Salary £125 per annum.

SOUTHAMPTON, ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House Surgeon for six months. Salary at rate of £120 per annum, with rooms, board, and washing.

SOUTH SHIELDS, INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—Junior House Surgeon. Salary £115 per annum, with residence, board, and washing.

SOUTH SHIELDS UNION, HARTON POOR-LAW INSTITUTION.—Assistant Medical Officer. Salary £200 per annum.

STIRLING DISTRICT ASYLUM, Larbert, N.B.—Female Third Assistant Medical Officer. Salary £140 per annum, with board, &c.

STROUD GENERAL HOSPITAL.—House Surgeon. Salary £120 per annum, with board, lodging, and washing.

TAUNTON AND SOMERSET HOSPITAL, Taunton.—Senior House Surgeon. Salary £120 per annum, with board, lodging, and laundry.

TRURO, ROYAL CORNWALL INFIRMARY.—House Surgeon, unmarried. Salary £150 per annum, with rooms, board, and washing.

TUNBRIDGE WELLS GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, residence, &c.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—House Physician for six months. Salary £40, with board and lodging.

WAKEFIELD, CLAYTON HOSPITAL.—Senior House Surgeon. Salary £160 per annum, with board, lodging, and laundry.

WAKEFIELD, WEST RIDING ASYLUM.—Assistant Medical Officer. Salary £250 per annum, with apartments, board, washing, and attendance. Also Locum Tenens Assistant Medical Officer. Salary as arranged, with apartments, board, &c.

WALSALL AND DISTRICT HOSPITAL.—Junior House Surgeon and Anæsthetist. Salary £110 per annum, with board, residence, and laundry

WEST BROMWICH AND DISTRICT HOSPITAL.—House Surgeon and Assistant House Surgeon, unmarried. Salary £150 and £120 per annum respectively, with residence, board, and laundry.

WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford, E.—Junior House Surgeon. Salary at rate of £100 per annum, with board, residence, and washing.

WEST RIDING OF YORKSHIRE, CARDIGAN SANATORIUM, near Wakefield.—Assistant Medical Officer. Salary £250 per annum.

WIGAN, ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Female Junior House Surgeon. Salary £130 per annum, with board, apartments, and washing.

WORCESTER GENERAL INFIRMARY.—Resident Medical Officer. Salary £150 per annum, with board, residence, and washing.

WORKSOP VICTORIA HOSPITAL AND DISPENSARY.—Medical Officer and House Surgeon. Salary £150 per annum, with rooms, coal, light, and attendance.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Paignton and at Braunton, in the county of Devon; and at Mountrath, in Queen's County.

Births, Marriages, and Deaths.

BIRTHS.

BENSON.—On Jan. 4th, to Dr. and Mrs. Benson, of Fiddington House, Market Lavington, a daughter.

BERNSTEIN.—On Jan. 6th, at Queen Anne-street, Cavendish-square, W. the wife of Dr. J. M. Bernstein (née Constance Wreyford), of a son.

LEATHART.—On Jan. 5th, at Gatestone-road, Upper Norwood, the wife of Percival W. Leathart, M.B., B.C., of a son.

RICKARD.—On Jan. 8th, at Hazelwood-terrace, Plymouth, the wife of Staff Surgeon C. R. Rickard, R.N., of a daughter (stillborn).

THURNELL.—On Jan. 7th, at Woodville-terrace, Gravesend, the wife of Herbert L. Thurnell, M.A., M.D., a daughter.

MARRIAGES.

MCNEILL—DAVSON.—On Jan. 9th, at St. Peter's, Earley, Berkshire, Captain A. N. R. McNeill, R.A.M.C., to Nora, daughter of Mr. C. S. Davson, Chief Justice of Fiji, and Mrs. Davson.

NIXON—JOHNSON.—On Jan. 7th, at St. Wilfrid's Church, Harrogate, quietly on account of the war, by the Rev. Douglas Guy, Surgeon Horace Clulow Nixon, R.N., of Harrogate, youngest son of the late Benjamin Nixon and Mrs. Nixon, Ballington House, Leek, to Hilda de Angelis, younger daughter of Dr. and Mrs. T. Mason Johnson, The Gables, Harrogate.

RUFFMANN—GAYLORD.—On Jan. 6th, at St. Mary Magdalene's, Upper Tooting, Hermann H. Ruffmann, M.B., B.S., to Ada Millicent Parkinson, daughter of the late Mr. Percival Gaylord, of South Australia.

DEATHS.

DON.—On Jan. 11th, suddenly, at Sutherland-avenue, W., and of Braeside, Kingsdown, Dover, William Walton Don, M.D., aged 42 years.

HARRISON-SMITH.—On Jan. 4th, at Ramsgate, Horace Harrison-Smith, M.D., R.N., aged 90 years.

MCNAMARA.—On Jan. 9th, at Rosslyn, Blakesley-avenue, Ealing, suddenly, Surgeon-General W. H. McNamara, C.B., C.M.G., late Army Medical Service.

PORTER.—On Jan. 7th, at Edith-road, W., Robert Ibbetson Porter, M.A. Oxon., L.R.C.P., M.R.C.S., aged 53 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

BOOKS, ETC., RECEIVED.

ARNOLD, EDWARD, London.

Surgical Materials and their Uses. By A. MacLennan, M.B., C.M. Glasg. Price 4s. 6d. net.

BAILLIÈRE, J. B., ET FILS, Paris.

Manuel de Prothèse Restauratrice Bucco-faciale et Traitement des Fractures des Maxillaires. Par P. Martinier et G. Lemerle, Professeurs à l'Ecole Dentaire de Paris. Pp. 360. Price 3 fr.

BAILLIÈRE, TINDALL, AND COX, London.

Practical Sanitary Science: A Handbook for the Public Health Laboratory. By David Sommerville, B.A., M.Sc., M.D., M.R.C.P. Lond., D.P.H. Camb., F.C.S. Second edition. Price 10s. 6d. net.

BALE, JOHN, SONS, AND DANIELSSON, LIMITED, London.

The Year Book of Open-Air Schools and Children's Sanatoria. Edited by T. N. Kelynack, M.D. Vol. I., 1915. Price 7s. 6d. net.

BLACK, ADAM AND CHARLES, London.

Writers' and Artists' Year Book. 1915. Price 1s. net.
Englishwoman's Year Book and Directory, 1915. Edited by G. E. Mitton. Price 2s. 6d. net.
Who's Who, 1915. Price 15s. net.

BLACKIE AND SON, London.

Studies in Questions Relating to Eye-training. By W. Phillips, M.A. Price 1s. 6d. net.

BRYAN COMPANY, THE R. L., Columbia, S.C.

Transactions of the National Association for the Study of Pellagra. Second Triennial Meeting at Columbia, October, 1912.

BUTTERWORTH AND CO. AND SHAW AND SONS, London.

The Sale of Food and Drugs Acts, 1875 to 1907, and Forms, Regulations, Orders, and Notices Issued Thereunder. With Notes and Cases by the late Sir William J. Bell, LL.D. Sixth edition. By Charles F. Lloyd. Chemical Notes revised and enlarged by R. A. Robinson. Price 8s. 6d. net.

CAXTON PRESS, Oswestry.

Calendar of the University of Wales for the Academic Year 1914–1915.

CHURCHILL, J. AND A., London.

Year-book of Pharmacy: Abstracts of Papers Contributed to British and Foreign Journals and Transactions of British Pharmaceutical Conference at Fifty-first Annual Meeting. Edited by J. O. Braithwaite, Reginald R. Bennett, and Thomas Stephenson.
Medical Diagnosis. By Arthur Latham, M.A., M.D. Oxon., F.R.C.P. Lond., and James Torrens, M.B., B.S. Lond., M.R.C.P. Lond. Price 15s. net.

FOULIS, T. N., London and Edinburgh.

Nietzsche: The Preacher of War. Translated by Helen Zimmern. Price 1s. net.

FROWDE, HENRY, AND HODDER AND STOUGHTON, London.

Text-book of Massage and Remedial Gymnastics. By L. L. Desgrad. Price 12s. 6d. net.
A Nursing Manual for Nurses and Nursing Orderlies. By D. C. L. Fitzwilliams, M.D., Ch.M., F.R.C.S. Price 6s. net.

HAMMOND, W. A., Holborn Hall, London.
Science and Religion. By Seven Men of Science: Sir Oliver Lodge, Professor J. A. Fleming, Professor W. B. Bottomley, Professor Edward Hull, Dr. J. A. Harker, Professor Sims Woodhead, Professor Silvanus Thompson. Price 1s. net.

HEINEMANN, WILLIAM, London.
Fighting in Flanders. By E. A. Powell. Price 3s. 6d. net.

HILL AND SONS, SAMUEL, Liverpool.
Edward Alanson and His Times. By R. W. Murray, F.R.C.S.

HILTON AND CO., Calcutta.
A Treatise on Hygiene and Public Health, with Special Reference to the Tropics. By B. N. Gosh, L.M.S., Calcutta, and J. Lal Das, L.M.S. Calcutta. With Introduction by Col. Kenneth Macleod, I.M.S., retired. Price 6s. net.

HODDER AND STOUGHTON, London.
National Health Insurance through Approved Societies: Being a Practical Legal Treatise Incorporating the Operative Orders and Regulations. By W. Addington Willis, LL.B. Lond. Price 10s. 6d. net.
University of London: Regulations and Courses for Internal Students. Price 2s. 6d. net.
Regulations for External Students. September, 1914. Price 1s. 6d. net.
University of London Calendar for the Year 1914–15. Price 6s. net.

LAURIE, T. WERNER, London.
Soldiers' English-French Conversation Book. By W. A. Gallichan. Price 7d.
The Nightside of Japan. By T. Fujimoto. Price 7s. 6d. net.
Nietzsche. By J. M. Kennedy. Price 1s. net.
A Woman in China. By Mary Gaunt. Price 15s. net.
The Old East Indiamen. By E. Keble Chatterton, Lieut. R.N.V.R. Price 12s. 6d. net.
My Bohemian Days in London. By Julius M. Price. Price 10s. 6d. net.

LIPPINCOTT, J. B., COMPANY, Philadelphia and London.
Ten Sex Talks to Girls. By I. D. Steinhardt, M.D. Price 4s. 6d. net.
Ten Sex Talks to Boys. By I. D. Steinhardt, M.D. Price 4s. 6d. net.

LONDON PUBLICITY COMPANY, 11, Adam-street, Adelphi, London.
Mental Therapeutics (Faith, Medicine and the Mind). By Charles Reinhardt-Rutland, M.D., D.S. Brux. With Introduction by Sir Oliver Lodge, F.R.S. Third edition. Price 2s. net.

LONGMANS, GREEN, AND CO., London, New York, and India.
What is Adaptation? By R. E. Lloyd, M.B., D.Sc. Lond., Major I.M.S., Professor of Biology, Medical College, Calcutta. Price 2s. 6d. net.

MACMILLAN AND CO., London.
Text-book of Embryology. Vol. I. Invertebrata. By E. W. MacBride, M.A., D.Sc., LL.D., F.R.S. Edited by Walter Heape, M.A., F.R.S. Price 25s. net.
First Book of Physiology and Hygiene. By Gertrude D. Cathcart, M.B., B.Sc. Glasg., D.P.H. Camb. Price 1s. 6d.
The Philosophy of Change: a Study of the Fundamental Principle of the Philosophy of Bergson. By H. Wildon Carr. Price 6s. net.

MARLBOROUGH AND CO., London.
French Self-Taught. Enlarged edition, revised by J. Laffitte, B-es-L. Price 1s. paper covers, 1s. 6d. cloth.

MASSON ET CIE., Paris.
Précis de Chirurgie de Guerre. Par E. Delorme, Médecin Inspecteur Général de l'Armée, Membre de l'Académie de Médecine, Membre et ancien Président de la Société de Chirurgie, grand officier de la Légion d'Honneur. Price 4.50 fr.

OLIVER AND BOYD, Edinburgh.
Transactions of the Edinburgh Obstetrical Society. Vol. XXXIX. Session 1913–1914. Edited by Dr. James Young.

G. P. PUTNAM'S SONS, New York and London.
Recreations of a Physician. By A. Stuart M. Chisholm, M.D. Price 7s. 6d. net.
Life and Law: The Development of the Exercise of the Sex Function together with a Study of the Effect of Certain Natural and Human Laws, and a Consideration of the Hygiene of Sex. By Maude Glasgow, M.D. Price $1.25 net.

SAUNDERS (W. B.) COMPANY, London and Philadelphia.
Abdominal Operations. New third edition. By Sir Berkeley Moynihan, M.S. Lond., F.R.C.S. 2 vols. 387 illustrations, 5 in colours, per set. 42s. net.
Local and Regional Anæsthesia. By Carroll W. Allen, M.D., Instructor in Clinical Surgery at the Tulane University of Louisiana. 255 illustrations. 25s. net.
Chemical Analysis. By A. R. Bliss, Ph.G., M.D., Professor of Chemistry and Pharmacy, Birmingham Medical College, Alabama. Cloth, 8s. 6d. net.

UNIVERSITY OF BRISTOL.
Calendar 1914–15.

WILEY, JOHN, AND SONS, New York. CHAPMAN AND HALL, London.
Outlines of Organic Chemistry: a Book Designed Especially for the General Student. By F. J. Moore, Ph.D., Professor of Organic Chemistry in the Massachusetts Institute of Technology. Second edition. Price 6s. 6d. net.

WOMEN'S EMPLOYMENT PUBLISHING CO., Prince's-street, London, W.
Careers. Fourth Edition of the Fingerpost. A Guide to the Professions and Occupations of Educated Women and Girls. Price 1s. 6d.

Notes, Short Comments, and Answers to Correspondents.

MEDICAL NOTES IN HISTORICAL MANUSCRIPTS.

To the Editor of THE LANCET.

SIR,—The papers of the Harley family include an excerpt from the *Newsletter*, dated Whitehall, Oct. 23rd, 1688, which relates to the birth of James Francis Edward, Prince of Wales and son of James II., who was born on June 10th, 1688. Some fear was entertained that the party in favour of the Prince of Orange (afterwards William III.) would endeavour to impeach the legitimacy of the Prince of Wales, and the journal shows the quaint steps that were taken to forestall such an event.

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MY DEAR EDITOR,—As I look back over this busy and eventful year, I realize to how great an extent the progress of the Department has depended upon the helpfulness of those who, while not in the Department or of it, have sympathised with its aims and have co-operated in its work. Officially and personally I feel under obligation for the help you have given.

With best wishes for the new year,

I am, yours cordially,

S. S. GOLDWATER, M.D.,
Commissioner of Health, City of New York.

Dec. 31st, 1914.

THE BRITISH TRADITION OF ENDURANCE.

A TRADITION of endurance is the heritage of Englishmen. It may prove of interest at a time when so much is being suffered in the trenches at the front and, be it remembered, in our North Sea Fleet during its anxious and strenuous vigil, to remind ourselves of some of the famous stories of what Britons have endured in the past. A choice collection of horrors nobly faced is contained in the fine old "Narrative of Captain David Woodard and Four Seamen," which was published in 1804, with a curious appendix "containing narratives of various escapes from shipwrecks, under great hardships and abstinence; holding out a valuable Seaman's Guide, and the Importance of Union, Confidence, and Perseverance in the midst of Distress." The case of Robert Scotney is so well authenticated as to compel belief. This man, a whaler, was picked up in the South Seas in the year 1803. He was the sole surviving occupant of a large boat, the crew of which had been swept away by a heavy sea which drenched his food. He was alone at sea for 75 days, during which while steering a course for what he believed to be the nearest land he kept himself alive on 3½ lb. of meat, 3 lb. of flour, 6 lb. of bread, and two hogsheads of water, some whale-oil found at the bottoms of casks, and a small quantity of salt. "He likewise emptied a medicine chest he had on board and got out of it some burning medicine, which he found made his body a little comfortable and warm." He never had his clothes off and was almost constantly wet, yet he, humble sailor though he was, possessed the foresight and the moral courage to allowance himself daily while setting his sails, first for Tristan da Cunha, which he missed, and then for the Cape of Good Hope. When found he had been for some days too feeble to visit his small store of food or to shift his helm, and had kept alive with the help of tobacco, of which he took an amazing quantity. When taken on board "both his cheeks were swelled out amazingly with the ruinous quality he had in his mouth, and which he seemed to suck with convulsive agony." He had entirely lost the use of his limbs; he was pale and emaciated, and it was the opinion of the surgeons that he could not have survived two days. Scotney was a Lincolnshire man, but we are not told whether he was strong or particularly enduring, or whether his heredity was in any way remarkable.

Other survivors of hardship whose narratives are on record attained to respectable ages and must have been men of exceptional stamina. Thus William Boys, for many years Lieutenant of Greenwich Hospital, who died in 1774 and fasted for 12 days annually in order to commemorate the hardships endured by him in 1727, must have been of a peculiarly sturdy type. Cast away with 15 others in a boat in mid-Atlantic, he managed to survive 12 days without food or liquids, except a little rain-water, some human blood, and a few mouthfuls of human flesh. Though seven or eight of the boat's crew died, the survivors were restrained through horror and various other motives from becoming complete cannibals, and they carefully abstained from eating any parts of their dead comrades save the hearts and from drinking more than 4 pints of blood, carefully measured, of four of them. They might have been more cannibalistic, but the point of the narrative is that for 12 days they abstained from human flesh almost entirely and were obviously debarred from

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Notes, Short Comments, and Answers to Correspondents.

MEDICAL NOTES IN HISTORICAL MANUSCRIPTS.

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A TRADITION of endurance is the heritage of Englishmen. It may prove of interest at a time when so much is being suffered in the trenches at the front and, be it remembered, in our North Sea Fleet during its anxious and strenuous vigil, to remind ourselves of some of the famous stories of what Britons have endured in the past. A choice collection of horrors nobly faced is contained in the fine old "Narrative of Captain David Woodard and Four Seamen," which was published in 1804, with a curious appendix "containing narratives of various escapes from shipwrecks, under great hardships and abstinence; holding out a valuable Seaman's Guide, and the Importance of Union, Confidence, and Perseverance in the midst of Distress." The case of Robert Scotney is so well authenticated as to compel belief. This man, a whaler, was picked up in the South Seas in the year 1803. He was the sole surviving occupant of a large boat, the crew of which had been swept away by a heavy sea which drenched his food. He was alone at sea for 75 days, during which while steering a course for what he believed to be the nearest land he kept himself alive on 3½ lb. of meat, 3 lb. of flour, 6 lb. of bread, and two hogsheads of water, some whale-oil found at the bottoms of casks, and a small quantity of salt. "He likewise emptied a medicine chest he had on board and got out of it some burning medicine, which he found made his body a little comfortable and warm." He never had his clothes off and was almost constantly wet, yet he, humble sailor though he was, possessed the foresight and the moral courage to allowance himself daily while setting his sails, first for Tristan da Cunha, which he missed, and then for the Cape of Good Hope. When found he had been for some days too feeble to visit his small store of food or to shift his helm, and had kept alive with the help of tobacco, of which he took an amazing quantity. When taken on board "both his cheeks were swelled out amazingly with the ruinous quality he had in his mouth, and which he seemed to suck with convulsive agony." He had entirely lost the use of his limbs; he was pale and emaciated, and it was the opinion of the surgeons that he could not have survived two days. Scotney was a Lincolnshire man, but we are not told whether he was strong or particularly enduring, or whether his heredity was in any way remarkable.

Other survivors of hardship whose narratives are on record attained to respectable ages and must have been men of exceptional stamina. Thus William Boys, for many years Lieutenant of Greenwich Hospital, who died in 1774 and fasted for 12 days annually in order to commemorate the hardships endured by him in 1727, must have been of a peculiarly sturdy type. Cast away with 15 others in a boat in mid-Atlantic, he managed to survive 12 days without food or liquids, except a little rain-water, some human blood, and a few mouthfuls of human flesh. Though seven or eight of the boat's crew died, the survivors were restrained through horror and various other motives from becoming complete cannibals, and they carefully abstained from eating any parts of their dead comrades save the hearts and from drinking more than 4 pints of blood, carefully measured, of four of them. They might have been more cannibalistic, but the point of the narrative is that for 12 days they abstained from human flesh almost entirely and were obviously debarred from

other nourishment. These old sufferers were curiously religious and strangely subordinate even when they turned into eaters of dead men and waited to eat their horrid ration after Captain Scurrion had been fed. And it is this strong religious feeling and this sense of discipline which seems to have become part of the British tradition. It emerges in innumerable letters from the front to-day, and is one of those assets of mind as dominant over body which differentiate the great from the ignoble races. There is a similarity about these classic narratives of endurance which, though inspiring, renders repetition unnecessary. We have cited two typical instances, and need not do more than mention the sufferings of Lieutenant Bligh, Captain Inglefield, Dean, Dominicus, Fellowes, and Kennedy, all of which were attested by numerous witnesses. Among these heroic old sufferers one figure particularly interests us, that of the ship's surgeon, who seems always to have been of the boat's crew. Among Boys's companions, for instance, was Thomas Scrimsour, surgeon, who lived at North Cray in Kent, and died at the age of 80 in 1784. Though he had been one of the first to be served in the shrinking and horror-stricken anthropophagies of his comrades, he was noted through life as a pattern of "probity and benevolence." Character, indeed, seems never to have been wanting to the old adventurous medical men of the age that saw the foundation of the Empire and the final formation of the British type.

VITAL STATISTICS OF BARBADOS.

A REPORT prepared by Major J. A. Burdon, C.M.G., Colonial Secretary of Barbados, states that the population of the colony on Dec. 31st, 1913, was estimated to be: 72,066 males, 101,293 females—total, 173,359. The birth-rate per 1000 for the year was 31·9, as compared with 36·8 in 1912; and the death-rate 21·3, as against 41·0. Illegitimate births numbered 3359, or 60·5 per cent. of the total births. The burials of children under a year old numbered 1173, giving a rate of 213 per 1000 births. This shows a decrease of 1469 such burials, and a reduction of 203 in the rate per 1000 on the figures for 1912, which were abnormal. The mean maximum temperature for the year was 83·2° F. and the mean minimum 74·9°. The average rainfall from 138 stations was 56·84 inches. At the General Hospital, situated in Bridgetown, 3356 patients were admitted during the year, of whom 247 died, and 26,913 out-patients were treated. At the Lazaretto there were 12 admissions, 1 discharge, and 11 deaths, leaving 120 inmates at the end of the year. Compulsory segregation is not in force in the colony. At the Lunatic Asylum the daily average number of patients was 399. The admissions numbered 132, the discharges 39, and the deaths 76.

BRITISH SALVARSAN.

THE British Board of Trade having granted a licence to Mr. Henry S. Wellcome for the use of the enemy patents, Messrs. Burroughs, Wellcome, and Co. are now manufacturing a chemical product which, after a biological test under arrangements approved by the Board, is issued under the name "Kharsivan" Brand Salvarsan. "Kharsivan" is positively stated to be identical chemically, physically, and therapeutically with the salvarsan of German manufacture, and is employed in the same manner and dosage. At the moment two strengths only are issued, 0·4 and 0·6 gramme, in hermetically sealed tubes, and supplies are limited. That Messrs. Burroughs, Wellcome, and Co. should have been equal to the occasion, and that their scientific resources should have brought them to the prompt solution of the problem of manufacture is a matter upon which this enterprising firm may well be congratulated.

THE ETIOLOGY OF THE WAR.

ONE of the best condensed summaries of the causes, predisposing as well as exciting, of the war that we have seen is "Origins of the Great War, or the British Case," by John Kirkpatrick, M.A., LL.D., Emeritus Professor of History, University of Edinburgh, published by Adam and Charles Black, Limited, of London, price 1*d*. The author divides the causes into (1) immediate, (2) indirect, (3) constitutional, and considers each class with remarkable lucidity and such method and order as one has a right to expect from a professor of history.

BOISSELIERS' BELGIAN CHOCOLATE FUND.

Messrs. Boisseliers, chocolate makers at Watford, are appealing to the public to buy 250,000 boxes of their excellent chocolates and thus provide £5000 for the Belgian sufferers. About one-fifth of the total receipts of the sales are being given to H.M. the King of Belgium through the *Daily Telegraph* Shilling Fund, and the purchase of either one 5*s*. box, two 3*s*. boxes, or four 1*s*. 6*d*. boxes means a contribution of 1*s*. to help the Belgians.

THE gentleman who found an unopened letter addressed to the Editor of THE LANCET in an omnibus, and who kindly and anonymously posted it to this office, is informed that his courtesy is much appreciated.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.

THURSDAY.—Papers:—Dr. C. Chree: Atmospheric Electricity Potential Gradient at Kew Observatory, 1898–1912.—Prof. A. E. H. Love: The Transmission of Electric Waves over the Surface of the Earth.—Mr. L. Silberstein: Electromagnetic Waves in a Perfectly Conducting Tube (communicated by Prof. A. W. Porter).—Mr. H. B. Keene: An Electrically-heated Full Radiator (communicated by Sir O. Lodge).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

TUESDAY.

SECTION OF THERAPEUTICS AND PHARMACOLOGY (Hon. Secretaries—W. Langdon Brown, Philip Hamill, J. Gordon Sharp): at 4.30 P.M.

Papers:

Dr. Douglas Cow: The Action of the Suprarenal on Renal Secretion.

Dr. Ikeda and Professor Dixon: The Action of Ergot on the Pulmonary Circulation.

GENERAL MEETING OF FELLOWS at 5 P.M.

A Ballot will be held for Candidates for Fellowship.

WEDNESDAY.

SECTION OF THE HISTORY OF MEDICINE (Hon. Secretaries—Raymond Crawfurd, Leonard G. Guthrie): at 5 P.M.

(1) Exhibition of Books Illustrating the History of Military Hygiene. The President, Dr. Norman Moore, will discourse on such books as he may select from the collection.

(2) Lucian and Medicine. Part I.: Dr. J. D. Rolleston.

N.B.—The books to be shown and discussed at the meeting will be on view in the Library from Jan. 14th to 21st, and will be open to all Members of the Section between 11 A.M. and 6.30 P.M.

THURSDAY.

SECTION OF DERMATOLOGY (Hon. Secretaries—S. E. Dore, A. M. H. Gray): at 5 P.M.

Exhibition of Cases (at 4.30 P.M.):

Dr. H. W. Barber: Pityriasis Rubra Pilaris.

Dr. J. H. Sequeira: (1) Gangrene of Toes in an Infant; (2) Bristle from Hair-brush with Ova of Hæmatopinus Suis.

Dr. G. Pernet: Extensive Pigmented Hairy Nævus.

FRIDAY.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN (Hon. Secretaries—Philip Turner, J. D. Rolleston, Sidney Gilford): at 4.30 P.M.

Cases and Specimens:

Dr. E. B. Gunson: Suprarenal Hæmorrhage in an Infant.

Dr. J. D. Rolleston: Congenital Heart Disease and Ulcerative Sore Throat.

Mr. Sydney Stephenson: Hæmatoma of the Eyelid in an Infant.

Dr. H. W. Barber: Enlarged Liver in a Boy.

ROYAL SOCIETY OF ARTS, John-street, Adelphi, W.C.

MONDAY.—8 P.M., Cantor Lecture:—Dr. F. M. Perkin: Oils, their Production and Manufacture. (Lecture I.)

LONDON DERMATOLOGICAL SOCIETY, St. John's Hospital, 49, Leicester-square, W.C.

TUESDAY.—4.30 P.M., Demonstration of Pathological Specimens and Clinical Cases.

ROYAL MICROSCOPICAL SOCIETY, 20, Hanover-square, W.

WEDNESDAY.—8 P.M., Paper:—Dr. C. Singer: Notes on the History of the Microscope.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 10.30 A.M., Medical Registrar: Demonstration of Cases in Wards. 12 noon, Dr. Bernstein: Pathological Demonstration. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Dr. Pritchard: Bacterial Therapy Department. Mr. B. Harman and Mr. Gibb: Diseases of the Eye.

TUESDAY.—10 A.M., Dr. Owen: Demonstration of Cases in Wards. 12 noon, Mr. T. Gray: Demonstration of Fractures, &c. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 11 A.M., Mr. Souttar: Demonstration of Minor Operations. 12 noon, Lecture:—Mr. Souttar: Abdominal Diagnosis. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations. Dr. Simson: Diseases of Women. Mr. Gibb: Diseases of the Eye.

THURSDAY.—9 A.M., Dr. Bernstein: Bacterial Therapy Department. 12 noon, Lecture:—Dr. G. Stewart: Neurological Cases. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Mr. B. Harman: Diseases of the Eye.

FRIDAY.—9 A.M., Dr. Simson: Gynæcological Operations. 10.30 A.M., Surgical Registrar: Demonstration of Cases in Wards. 12.15 P.M., Lecture:—Dr. Bernstein: Applied Pathology. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Eye Operations. 12 noon, Lecture:—Mr. Souttar: Surgical Anatomy of the Abdomen. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.

TUESDAY AND FRIDAY.—3 P.M., Lecture:—Dr. A. Wylie: Diseases of the Larynx.

THE THROAT HOSPITAL, Golden-square, W.

MONDAY.—5.15 P.M., Special Demonstration of Selected Cases.
THURSDAY.—5.15 P.M., Clinical Lecture.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, 49, Leicester-square, W.C.

THURSDAY.—6 P.M., Chesterfield Lecture:—Dr. M. Dockrell: Vesicular and Bullous Diseases and their Treatment.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.

TUESDAY.—3 P.M., Prof. C. S. Sherrington: Muscle in the Service of Nerve. (Lecture I.)
THURSDAY.—3 P.M., Mr. H. G. Plimmer: Modern Theories and Methods in Medicine. (Lecture I.) (Illustrated by experiments, micro-photographs, &c., and Cinematograph films.)

CHADWICK PUBLIC LECTURES, Lecture Hall, Royal Society of Arts, John-street, Adelphi, W.C.

FRIDAY.—5.15 P.M., Dr. F. M. Sandwith: War and Disease—II., The South African and Russo-Japanese Campaigns.

MANCHESTER HOSPITALS POST-GRADUATE CLINICS.

THURSDAY.—ANCOATS HOSPITAL, Mill-street.—4.30 P.M., Dr. D. Core: Cerebral Tumour.

For further particulars of the above Lectures, &c., see Advertisement Pages.

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IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

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THE INDEX TO THE LANCET.

THE Index and Title-page to Vol. II. of 1914 were given in THE LANCET of Dec. 26th, 1914.

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VOLUMES for the second half of the year 1914 are now ready. Bound in cloth, gilt lettered, price 16*s.*, carriage extra.

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(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Jan. 13th, 1915.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Jan. 7	29·486	S.W.	0·53	54	52	43	46	46	Cloudy
,, 8	29·480	S.W.	1·10	66	47	42	41	43	Cloudy
,, 9	29·304	W.	...	60	45	40	40	41	Raining
,, 10	29·690	S.	0·30	47	44	35	36	38	Fine
,, 11	29·390	S.W.	0·01	65	47	38	40	42	Fine
,, 12	29·760	N.W.	0·05	57	46	39	40	43	Raining
,, 13	30 000	S.W.	...	61	54	42	45	45	Raining

The following magazines, journals, &c., have been received:—Eugenics Review, Revue d'Hygiène, Birmingham Medical Review Journal of Anatomy and Physiology, Bulletin de l'Office International d'Hygiène, Publique, Dublin Journal of Medical Science, Cleveland Medical Journal, Medical Journal of Australia, Medical Review, American Journal of Medical Sciences, Indian Journal of Medical Research, Surgery, Gynecology and Obstetrics, Journal of Tropical Medicine and Hygiene, St. George's Hospital Gazette, Duodecim, Science Progress, &c.

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